SCC

SCAP Compliance Checker
Version 5.10.2 User Manual
for Solaris

.

Table of Contents

1. INTRODUCTION

The Security Content Automation Protocol (SCAP) Compliance Checker (SCC) is a SCAP 1.3 Validated Authenticated Configuration Scanner, with support for SCAP versions 1.0, 1.1, 1.2 and 1.3, and an Open Vulnerability Assessment Language (OVAL) adopter, capable of performing compliance verification using SCAP content, and authenticated vulnerability scanning using OVAL content.

1.1 Background

1.1.1 About this Manual

This User Manual is intended to explain all of the features and functionality of the SCC application, along with some basic information regarding the SCAP standards. As SCC is used by thousands of people across hundreds of government agencies, a single Standard Operating Procedure (SOP) is not feasible. Each agency may need to create their own SOP based on their intended usage of SCC.

For DOD Usage, and integration with the Security Technical Implementation Guides (STIG) Viewer, please refer to DISA's (Defense Information Systems Agency) documentation, which is located at: https://cyber.mil/stigs/srg-stig-tools/

1.1.2 What is SCC?

SCC is an XML interpreter of SCAP content, meaning SCC performs automated security configuration checks based on the content that is installed and enabled. The end user can install SCAP content into SCC, and enable one or more SCAP content streams to perform compliance checking.

1.1.3 Who can use SCC?

Starting with SCC version 5.4, the application can be freely distributed and used by anyone. Refer to Appendix F for our legal disclaimer in our End User License Agreement.

1.1.4 Who funds the development and support of SCC?

Starting with FY23 SCC has been funded by groups of end users. See Appendix H for details about historical funding, current FY23 funding, and future funding efforts.

1.1.5 What is SCAP and SCAP Content?

At a very high level, SCAP is a set of XML standards, primarily XCCDF and OVAL, which include policy settings and technical instructions to perform automated checking.

SCAP Content is a collection of XML files, usually bundled in a zip file, which defines the checks to be evaluated on a target system or targeted systems. This bundle, or 'stream', instructs what checks to perform, provides all text fields such as titles, references, descriptions, and to some extent, how to perform them. SCAP validated scanners such as SCC ingest the stream and perform the checks listed therein.

1.2 Platforms Supported

- Solaris 11 (x86 & SPARC)
- Cisco IOS
- Cisco IOS XE

Note 1: There are separate SCC installers per architecture (Windows, Linux (RPM, DEB), Solaris, MacOS)

Note 2: 'Supported' is defined as the application has been designed to run on the Operating System and architecture, and has been tested in our lab to execute as expected. Content may not be provided, but end users could obtain content from other sources, or write their own, and install and run in the application. See below for the list of content included in the installer.

1.3 SCAP Content Included

1.3.1 SCAP Streams

- NIWC Manual Question "Enhanced" DISA STIG SCAP content obtained from:
  https://www.niwcatlantic.navy.mil/scap/scap-content-repository/
    - Solaris 11 SPARC
    - Solaris 11 x86
    - Cisco IOS XE Router RTR
    - Cisco IOS XE Router NTM

1.4 Changelog

1.4.2 Changelog for 5.10.2

Below is an abbreviated list of the primary changes from version 5.10.1 to 5.10.2. Please refer to the release notes for a complete list of updates.

- For All Platforms
  - Updated SCAP content based on DISA STIG Manuals from 2025 Quarter 1 release
  - Updated all internal dependencies.
  - Minor improvements to GUI to better handle large monitors with screen resolution > 3000 wide
- Windows
  - Fixed issues running on systems that have a different version of openSSL installed to Windows\System32
- Linux
  - Added DISA SCAP content for Ubuntu 22.04
  - Dropped support for 32 bit Raspbian 11
- Solaris
  - N/A

1.4.1 Changelog for 5.10.1

Below is an abbreviated list of the primary changes from version 5.10 to 5.10.1. Please refer to the release notes for a complete list of updates.

- For All Platforms
  - Updated SCAP content based on DISA STIG Manuals from 2024 Quarter 4 release
  - Decreased default thresholds for pass/fail details to prevent large and slow to create reports and XCCDF
  - Fixed report generation slowdown when creating reports with numerous failed SQL records (MS SQL Server content)
  - Updated all internal dependencies.
- Windows
  - Fix issues scanning some SQL Server instances when Microsoft ODBC version 18 drivers are present
  - Update Windows 'ntuser' tests to exclude user profiles that have not be logged into via Windows Explorer
- Linux
  - Fixed SCC GUI launch issues on Ubuntu 20 aarch64
- Solaris
  - Fixed issues running SCC on Solaris 11 x86 due to missing dependency

1.4.2 Changelog for 5.10

Below is an abbreviated list of the primary changes from version 5.9 to 5.10. Please refer to the release notes for a complete list of updates.

- For All Platforms
  - Updated SCAP content based on DISA STIG Manuals from 2024 Quarter 3 release

- Improved XCCDF and CKL results to be more concise and easier to understand when viewed with STIG Viewer, eMASS etc.
- Added Result Analysis to HTML and Text reports to help explain why a specific check failed
- Fixed Tailoring issue with remote SSH scanning
- Updated all internal dependencies.
- Windows
  - Fix issues scanning some SQL Server instances when Microsoft ODBC version 18 drivers are present
  - Fixed Cmdlet parameters that contain braces {} should not surround values with single quotes
- Linux
  - N/A
- Solaris
  - N/A

1.4.3 Changelog for 5.9

Below is an abbreviated list of the primary changes from version 5.8 to 5.9. Please refer to the release notes for a complete list of updates.

- For All Platforms
  - Add feature of "hybrid" checks which take end user provided answers and use as OVAL state for pass/fail of specific STIG rules
    - Only used with MS SQL Server content for SCC 5.9, may expand to other platforms in the future.
    - Refer to Section 6 of this user manual for full details
- Windows
  - Added support for SQL Server 2016 -> 2022
  - Created SCAP benchmarks from the SQL 2016 STIGS, applicable to SQL Server 2016 -> 2022
  - Removed support for 32 bit Windows 10
- Linux
  - Fixed 'type' issues with with selinuxsecuritycontext_tes
  - Added new debian_evr_string simple datatype
  - Removed support for RHEL6 and Ubuntu 16
- MacOS
  - Removed support for MacOS
- Solaris
  - Removed support for Solaris 10

1.4.4 Changelog for 5.8

Below is an abbreviated list of the primary changes from version 5.7.2 to 5.8 Please refer to the release notes for a complete list of updates.

- For All Platforms
  - Several improvements to XCCDF Tailoring
    - Much faster load times on Tailoring form
    - Redesigned tailoring form for easier use
    - Added support for selecting different check systems, which works in combination with updated NIWC Enhanced SCAP content to allow any

automated rule to be converted to a manual check, if automated check doesn't match end user requirements.
- Added support for refine-values to allow any rule severity/weight to be changed based on end user requirements
- New Configuration Profiles, which allows GUI and CLUI methods to quickly switch between sets of SCC configurations
- Added new feature to make individual content streams be applicable to all targets, configurable via GUI and CLUI
- Added new command line parameter to make SCC not update/save/modify it's options file during a scan
- Windows
  - Fixed Windows classic remote scan related to residual data for remote classic scans with trustees when scanning multiple computers
  - Fixed issues with Windows sid_object and filters against the trustee_sid
- Linux
  - Added support for Ubuntu 22.04 (AMD64)
  - Fixed reporting ipv6 network addresses
- MacOS
  - N/A
- Solaris
  - N/A

1.4.5 Changelog for 5.7.2

Below is an abbreviated list of the primary changes from version 5.7.1 to 5.7.2 Please refer to the release notes for a complete list of updates.

- For All Platforms
  - Fixed Manual Questions not being applied to certain targets via WMI, primarily when scanning by IP address only
  - Fixed issues with DNS lookup of ipv6 based targets for SSH based scanning
  - Improved error handling and error reporting on WMI and SSH scanning
  - Updated reports to group by automated/manual when sorting by severity
- Windows
  - Fixed application crash when scanning large numbers of computers via WMI, and many of the targets are offline.
  - Updated WMI scanning to only perform DNS lookup of targets when WMI Alternate Credentials are enabled.
- Linux
  - Fixed reporting ipv6 network addresses
- MacOS
  - Fix

1.4.6 Changelog for 5.7.1

Below is an abbreviated list of the primary changes from version 5.7 to 5.7.1. Please refer to the release notes for a complete list of updates.

- For All Platforms
  - Fixed data interoperability issue with SCC's CKL file and eMASS
  - Disabled the creation of XCCDF Results for Manual Questions rules, if Manual Question processing option is disabled.

- Updated upgrade feature on Windows to upgrade any Manual Question results from a previous installation
- Improved functionality of Manual Question GUI, adding searching and sorting
- Minor improvements to Manual Question autoanswer text file templates
- Windows
  - Fixed issue running on Windows when no network cards have IP Addresses
- Linux
  - Fixed issue running GUI at 1024 x 768 resolution
- MacOS
  - Fixed minor issues with incorrectly identifying NIST content as containing manual checks.

1.4.7 Changelog for 5.7

Below is an abbreviated list of the primary changes from version 5.6 to 5.7. Please refer to the 5.7 release notes for a complete list of updates.

- For All Platforms
  - Updated all SCAP content bundled with SCC to be enhanced with manual checks, providing 100% coverage of DISA STIG Manuals, using SCAP standard of Open Checklist Interactive Language (OCIL)
  - Updated default SCAP content repository to NIWC's repository located at https://www.niwcatlantic.navy.mil/scap/scap-content-repository/
  - Updated SCC GUI to provide interface for manual questions, refer to section 4.6 for details
  - Added manual question autoanswer files for command line automation, refer to section 5.7 for details
  - Added creation of DISA's Checklist (CKL) report output, for SCAP content that has been enhanced with manual questions.
  - Improved error reporting in HTML/Text/XML
  - Improved result details in XCCDF XML results, which should be supported by DISA STIG Viewer in the future
  - Now officially SCAP 1.3 validated by an independent lab
  - Added funding popup on GUI and text based message on cscc --config as SCC will be crowdfunded in FY24
- For Windows
  - Added prompting to upgrade configuration from previous installation on first launch.
  - Added NIWC developed SCAP content for
    - Microsoft Internet Information Server (IIS) 8.5
    - Microsoft Internet Information Server (IIS) 10.0
    - Microsoft Office 365 ProPlus
    - Microsoft OneDrive
- For all UNIX
  - N/A
- For Linux
  - Added upgrade methods via RPM and DPKG methods, which imports SCC's options
  - Dropped support for rasbian 8
- For Solaris
  - N/A
- For Mac OS X
  - N/A

2. REQUIREMENTS

2.1 Minimum Hardware/OS Requirements

SCC can run on most UNIX computers, however, below are some minimum specifications.

HARDWARE	MINIMUM/RECOMMENDED
CPU	Intel/AMD x86 or x64 based processor. Recommend at least a 1.5 Ghz dual core or newer. For SPARC based systems, any UltraSPARC CPU capable of running Solaris 10 or later
RAM	1.0 GB Minimum, 2.0 GB or more is recommended. SCC uses about 250 MB to startup, and may use up to 1 GB during certain scans.
Disk space installation	The base install of SCC requires approximately 150 MB of disk space, depending on the platform.
Operating System	Solaris 10 or later

2.2 Scanning Requirements

2.2.1 Software must be run as root or equivalent to perform reviews

In order to accurately verify all of the system configuration settings, the software must be run as root, or equivalent, such as sudo, etc..

2.2.2 Free Disk Space

The amount of disk space that could be used during a scan is based on several variables, including the SCAP/OVAL content being used, the number of files/directories on the system, and user configurable options such as SCC's debug feature

It is advised to install SCC to a non-root partition that has several GB's of free disk space, as a single run could generate 200+ MB, of temporary data along with 200+ MB of XML, HTML, and Text reports

3. INSTALL/UNINSTALL

To obtain a copy of the SCAP Compliance Checker software please refer to the Technical Support section of this manual.

It is recommended to verify the SHA256 checksums of the downloaded zip files with the SCC checksum file from https://www.niwcatlantic.navy.mil/scap/ before proceeding to install.

3.1 Install/Remove/Upgrade software via Solaris package management system

3.1.1 Installation

To install, place the zipped SCC Solaris package file (e.g., scc-5.10.2-solaris-<architecture>.gz) file in a temporary directory. Note that the application installs to the /opt/scc directory, so /opt must exist prior to installation. From the directory containing the zipped package file, run the following command to install:

```
# gunzip scc-5.10.2-solaris-sparc.gz
# pkgadd -d scc-5.10.2-solaris-sparc all
```

View information on the installed package:

```
# pkginfo -l SPAWARscc
```

3.1.2 Removal

To uninstall, issue the following command:

```
# pkgrm SPAWARscc
```

3.1.3 Upgrade

This is not supported by the Solaris package management system, and a package removal and re-install will be required.

3.2 Install/Remove software via tar gzip file

3.2.1 'Install' software via tar gzip file

Note that 'man' pages will not be available via this method, however this method allows multiple installations on a system. The files are named *scc-5.10.2_<distro>_<processor>.tar.gz*

To install, simply extract to any directory.

```
Note:  Due to the amount of data that could be generated, and
sensitive nature of the data, only install to an appropriate
partition/directory.
```

3.2.2 Removal of software installed via tar gzip file

To remove software 'installed' from the generic tar gzip file, simply remove the installation directory and all sub-directories and files.

3.3 Install Details

3.3.1 Files Installed by the SCC

FILE	DESCRIPTION
cscc	Launcher program for the command line version of SCC
scc.bin	The primary scc application
options.xml	Default options file used by SCC
Documentation/ReadMe.txt	Text based documentation for the command line CSCC, equivalent to the man pages
Documentation/ReleaseNotes.txt	Summary of changes for this version of the software.
Documentation/SCC_UserManual.pdf	PDF version of the User Manual
Documentation/TermsOfUse.txt	Text file containing the Usage, which is displayed during the installation.
Documentation/ThirdPartyLicenses.txt	Contains list of third party libraries used in SCC and their respective licenses.
Documentation/ThirdPartyLicenses	Directory containing text formatted 3rd party licenses, referenced in ThirdPartyLicenses.txt
Local	Location in which SCC writes temporary files during execution.
RemotePlugin	Location in which remote UNIX and Windows scanning plugins may reside, empty by default.
Resources/Compiled/*	Folder containing compiled library files for SCC use
Resources/Content/*	Parent content folder for SCAP, SCAP 1.2, OVAL, OVAL External Variables, and OCIL content folders
Resources/Content/External_Variables	Contains any External Variables files associated with an OVAL content stream
Resources/Content/OVAL_Content	Contains any OVAL vulnerability content included with the installer or installed by the end user with the Install OVAL Content feature.
Resources/Content/OCIL_Content	Contains any stand alone OCIL content included with the installer or installed by the end user with the Install OCIL Content feature.
Resources/Content/SCAP_Content	Contains any SCAP 1.0 or SCAP 1.1 content included with the installer or installed by the end user
Resources/Content/SCAP12_Content	Contains any SCAP 1.2 content included with the installer or installed by the end user
Resources/Content/TrustedPublicCerts	Contains known/trusted certificates to verify digital signatures in SCAP 1.2 content
Resources/Content/XCCDF_Tailoring	Contains XCCDF Tailoring files which can be used with SCAP 1.2 datastreams
Resources/DB	Database utilized when processing SCAP 1.2 data streams

Resources/DefaultFiles	Contains default files used by the SCC
Resources/Graphics/*	Images and icons used with SCC
Resources/Schema/*	Files used to validate the SCAP XML content
Resources/Thresholds/*.xml	Contains the default and any user customized compliance thresholds
Resources/Transforms/*	Files used to create post scan HTML and text reports from the OVAL and XCCDF XML results

3.3.2 Files Created During Software Execution

FILE	DESCRIPTION
<User Defined Directory>/Sessions Refer to Data Directory option in "Editing Options" for details.	XML, HTML and Text based results created during a review. Also contains Screen, Debug and Error logs that are specific to a scan session.
<User Defined Directory>/ApplicationLogs Refer to Data Directory option in "Editing Options" for details.	SCC Application Logs (not related to any SCAP scan session) including Screen, Error and Debug logs that could be created during a review depending on user preferences.
<User Defined Directory>/Config Refer to Data Directory option in "Editing Options" for details.	Contains scan session database and host credential database.
<User Defined Directory>/options.xml	Configuration settings from the SCC
<SCC Install>/Local	Temporary files created during SCC execution

4. GUI BASED USAGE

Solaris does not have GUI support. Please continue to Section 5 - Command Line Usage for operating instructions.

5. COMMAND LINE USAGE

SCC has a separate binary for command line usage which is included in the installation package as 'cscc'. The Command-line SCAP Compliance Checker (CSCC) allows for scripted or automated reviews by other applications or scheduled tasks.

Any changes made via the SCC GUI such as content installation, or application preferences impact the command line interface and vice versa, as the options for both interfaces are saved to the same 'options.xml' file located in the SCC installation directory.

5.1 Basic Command Line Usage

Below is a quick overview of how CSCC works.

1. Open a Terminal with an account that has root privileges.
2. Install any additional SCAP Content into CSCC.
3. Run the Configuration Menu option of CSCC (--config).
4. View available SCAP content included with CSCC.
5. Enable SCAP Content and Select the desired profile from each SCAP Content stream.
6. Scan Computer with Enabled SCAP Content.
7. View reports.

To view all available command line options, use the -? parameter.

```
# ./cscc -? or # ./cscc --help
```

5.1.1 Open a Command Prompt

Open an command prompt (admin for any local scanning) and change directory to the SCC installation directory.

Example

```
# cd /opt/scc
```

5.2 Command Line Configuration Parameters

5.2.1 Configuration Parameters

Below are the parameters available for installing content and configuring application options. All of the following options must be used individually, and are not compatible with any other parameter.

For descriptions of each option available to be edited, refer to section 5.7, Editing Options

To see the help related to configuration parameters run '**# ./cscc -- help config**'

##

CONFIGURATION PARAMETERS:

Below are the parameters available for installing content and configuring application options. All of the following options must be used individually, and are not compatible with any other parameter.

-lc, --listConfigProfiles

    Prints a list of all available SCC configuration profiles

-nc, --newConfigProfile

    Creates and enables a new configuration profile for all future usage

    based on the current configuration. This only supports letters and numbers

    all other characters will be removed

    Example: cscc.exe --newConfigProfile myProfile2

    See --listConfigProfiles for a list of config profiles

-sc, --selectConfigProfile

    Selects a configuration profile for all future usage

    Example: cscc.exe --selectConfigProfile myProfile

    See --listConfigProfiles for a list of config profiles

--config

Open a command line menu which displays several configuration options

-eb, --enableBenchmark BENCHMARK_ID [version]

Enable a benchmark based on its ID, with optional benchmark version.

Example: # ./cscc --enableBenchmark Windows_10_STIG

Example: # ./cscc --enableBenchmark Windows_10_STIG 001.002

See --listAllBenchmarks for a list of benchmarks.

-db, --disableBenchmark BENCHMARK_ID [version}

Disable a benchmark based on its ID, with optional benchmark version.

Example: # ./cscc --disableBenchmark Windows_10_STIG

Example: # ./cscc --disableBenchmark Windows_10_STIG 001.002.

See --listAllBenchmarks for a list of benchmarks.

-ct, --createTailoringFile BENCHMARK_ID [version]

   Create a XCCDF Tailoring file which allows for manual edits if
   user does not have access to SCC GUI for tailoring.
   This feature creates the file, and selects that newly created
   tailored profile for use
   Example: cscc.exe --createTailoringFile Windows_10_STIG
   Example: cscc.exe --createTailoringFile Windows_10_STIG 001.002
   See --listAllBenchmarks for a list of benchmarks.

-aa, --applicableToAll BENCHMARK_ID [version]

   Set a benchmark applicable to all targets based on its ID, with
optional benchmark version.
   Example: cscc.exe --applicableToAll Windows_10_STIG
   Example: cscc.exe --applicableToAll Windows_10_STIG 001.002

-na, --notApplicableToAll BENCHMARK_ID [version]

   Remove the appliableToAll setting based on its ID, with optional
benchmark version.
   Example: cscc.exe --notApplicableToAll Windows_10_STIG
   Example: cscc.exe --notApplicableToAll Windows_10_STIG 001.002

-ea, --enableAll

Enable all SCAP and OVAL content.

-da, --disableAll

Disable all SCAP and OVAL content.

-ub, --uninstallBenchmark BENCHMARK_ID [version]

Uninstall a benchmark based on its ID, with optional benchmark version.

Example: # ./cscc --uninstallBenchmark Windows_10_STIG

Example: # ./cscc --uninstallBenchmark Windows_10_STIG 001.002

See --listAllBenchmarks for a list of benchmarks.

-ua, --uninstallAll

 Uninstall all SCAP and OVAL content.

--setProfile PROFILE BENCHMARK_ID

Set a profile to be applied to a specified content stream.

See --listAllProfiles for a list of profiles.

See --listAllBenchmarks for a list of benchmarks.

Example: # ./cscc --setProfile MAC-3_Sensitive Windows_10_STIG

--setProfileAll PROFILE

Set a profile to be applied to all content installed in SCC, if applicable. If a profile cannot be applied to a content stream it is not applicable. See --listAllProfiles to obtain a list of profiles.

Example: # ./cscc --setProfileAll MAC-3_Sensitive

--setOpt OPTION VALUE

Advanced user setting which allows command line configuration of any SCC option to a user specified value.

--setOpt can be called multiple times in a single command if needed, see second example.

Available options can be found in --listOpt, and need to be specified exactly. To set a value to an empty string, enter the value as all caps

NULL

Example: # ./cscc--setOpt dirSessionEnabled 0

Example: # ./cscc--setOpt dirSessionEnabled 0 --setOpt debugEnabled 1

--generateOptionsFile

Delete the options file, restore default settings, and reinstall all content. Note that this may take a few minutes.

--generateAutoAnswerTemplates

Delete and regenerarate all of the Manual Question auto-answer template files found in

Resources/Content/Manual_Questions/Templates

--restoreDefault

Restore all options to installation default.

-is FILE PROFILE [--force], --installScap FILE PROFILE [--force]

Install one or more SCAP content streams from an XML file or ZIP archive. Specifying an XCCDF benchmark profile name after the filepath will enable that profile for the given SCAP stream. Use the optional --force switch to reinstall

Example: ./cscc -is /home/user1/SampleScapContent.zip

Example: ./cscc --installScap /home/user1/SampleScapContent.zip

Example: ./cscc -is /home/user1/SampleScapContent.zip MAC-3_Sensitive

Example: ./cscc -is --force /home/user1/SampleScapContent.zip

Example: ./cscc --installScap --force /home/user1/SampleScapContent.zip MAC-3_Sensitive

-isr FILE PROFILE [--force], --installScapRun FILE PROFILE [--force]

Install, enable, and conduct an analysis with a SCAP Content stream from a zip file. Specifying an XCCDF benchmark profile name after the filepath will enable that profile for the given SCAP stream. Use the optional --force switch to reinstall.

Example: ./cscc -isr /home/user1/SampleScapContent.zip

Example: ./cscc --installScapRun /home/user1/SampleScapContent.zip

Example: ./cscc -isr /home/user1/SampleScapContent.zip MAC-3_Sensitive

Example: ./cscc -isr --force /home/user1/SampleScapContent.zip

Example: ./cscc --installScapRun --force /home/user1/SampleScapContent.zip MAC-3_Sensitive

-iv FILE [--force], --installOval FILE [--force]

Install OVAL Content from a single xml file or a zip file containing multiple xml files. Use the optional --force switch to reinstall.

Example: ./cscc --installOval /home/user1/sampleOval.xml

Example: ./cscc -iv --force /home/user1/sampleOval.xml

-ivr FILE [--force], --installOvalRun FILE [--force]

Install, enable, and conduct an analysis with OVAL Content from a single xml file or a zip file containing multiple xml files. Use the optional --force switch to reinstall.

Example: ./cscc --installOvalRun /home/user1/sampleOval.xml

Example: ./cscc -ivr --force /home/user1/sampleOval.xml

--installTailoringProfile FILE

Install an existing XCCDF Tailoring Profile file from another installation of SCC, created by the SCC GUI Tailoring interface. Installing a tailoring profile will set the selected profile for

the matching content to be the tailored profile in the selected
tailoring file

Example: cscc --installTailoringProfile <filepath to tailoring xml>

--checkForContentUpdates [--installUpdates | --installAll]

Check for SCAP content updates from an online content repository.
 Additional settings may need to be pre-configured before usage.

refer to: cscc --config -> Options -> Update Options

Example: cscc --checkForContentUpdates

Example: cscc --checkForContentUpdates --installUpdates

Example: cscc --checkForContentUpdates --installAll

--installUnixPlugin FILE

Install the UNIX Plugin file, to allow SSH based scanning of remote
UNIX hosts. The file below can be obtained from the same location
you downloaded SCC: SCC_5.5_UNIX_Remote_Scanning_Plugin.scc

Example: cscc --installUnixPlugin
<path>SCC_5.5_UNIX_Remote_Scanning_Plugin.scc

Refer to --installCredentialDB if this computer does not have the
ability to open the SCC GUI to update/maintain the hosts/credentials

--installCredentialDB FILE

If this computer is not able to open the SCC GUI to create/maintain
the SCC Host Credential Database, which is used to enter hosts and
credentials for SSH based remote scanning of UNIX and Cisco devices,
this feature allows you to install a previously created Host
Credential Database and use it for scanning.

*** NOTE 1: You will not be able to create new hosts, or edit
credentials, just perform scans using the Master Password for the
existing set of hosts/credentials. When host passwords expire, or
the Master Password expires, you'll need to obtain an updated Host
Credential DB and reinstall it via this command.

*** NOTE 2: This feature will always overwrite the existing host
credential db (if found). You will need to manually copy the
hostCredentials.db from another installation, by default it's found
in <your home directory>\SCC\Config

--register EMAIL REGISTRATION_CODE

This command line argument is used to register your email address
with a code

provided from the SCC team, obtained by emailing scc.fct@navy.mil,
indicating

that your team/group/agency is planning to send some level of
funding in the future.

Registering your email address makes the funding notice go away.

--upgrade FILE

Upgrade the configuration options from a previous installation of SCC.

SCC will load the current settings, and overlay the configuration settings from the selected

option file, excluding content, appUpdateURL and contentRepository.

Example: cscc --upgrade <filepath to existing SCC options xml>

5.3 Command Line Scanning Parameters

5.3.1 Scanning Parameters

Below are the parameters available for performing scans. Many of the options can be used in combination, unless indicated below. Any configuration change from a Scanning Parameter is temporary, and does not get saved for future use.

Note: parameters -f and -h for remote scanning are only applicable for Windows to Windows scans.

To see the help related to scanning parameters run '**# ./cscc --help scan**'

```
#######################################################
SCANNING PARAMETERS:
```

Below are the parameters available for performing scans. Many of the options can be used in combination, unless indicated below. Any configuration change from a Scanning Parameter is temporary, and does not get saved for future use.

no parameters

Review the local computer based on the configuration settings found in options.xml. If options.xml does not exist in the installation directory, it will be created based on application defaults

-d, --debug

Create a verbose debug log file in the Logs directory for troubleshooting purposes.

-ds, --debugToScreen

Debug to the Screen. This option will print a very large amount of data to the terminal, which can be captured and shared with our team, and should only be used to help diagnose crash type issues.

-dn, --doNotSaveChanges

Do not save changes back to SCC's options file.

This option prevent SCC from updating the option XML file being used and is primarily for usage with automation such as cron.

-ear, --enableAllRun

Enable all SCAP and OVAL content and run content.

-u DIRECTORY, --userDir DIRECTORY

Temporarily configure SCC to save user results and logs to the specified directory path.

Example: cscc -u C:\Users\User1

Example: ./cscc -u /home/user1

-cd DIRECTORY, --configDir DIRECTORY

Temporarily configure SCC to save application configuration files to the specified directory path.

Example: ./cscc -cd /home/user1

--ssh [cisco|unix]

Review all Cisco IOS/IOS-XE OR UNIX computers enabled in the Host Credential Manager, which is only available via the SCC GUI. You will be prompted to enter the SCC Host Credential Master Password in order to perform a remote command line SSH based scan.

Note that many command line parameters such as -d, -q, -r, -mr, -ear are not compatible with --ssh and should be configured via --setOpt or --config prior to calling cscc --ssh

'--ssh unix' can be used in combination with --wmi to scan both UNIX and Windows remotely at the same time.

Refer to --installCredentialDB for installing an existing SCC Host Credential Database from another system which is able to use the SCC GUI

--cisco FILE

Conduct an offline review against a Cisco IOS/IOS XE configuration file or ZIP archive of multiple configuration files located at the given file path.

**** Configuration files should be created with the 'show tech' command

Example: ./cscc --cisco /home/user1/sampleConfigFile.txt

-o FILE, --options FILE

Review using the specified options file.

Example: cscc -o options.xml

Example: ./cscc --options /home/user1/myOptions.xml

-q, --quiet

Review in quiet mode. No output will be displayed on the screen.

-r XCCDF_RULE_OR_OVAL_DEF, --rule XCCDF_RULE_OR_OVAL_DEF

Review a single Rule using the Rule ID from the XCCDF file

or review a single definition from an OVAL document.

Example1: cscc -r account_lockout_duration

```
Example2: cscc -r oval:mil.disa.stig.adobe.reader:def:1
```

-mr RULE_COUNT RULE_ID RULE_ID .., --multipleRules RULE_COUNT RULE_ID...

Review multiple rules using the Rule ID from the XCCDF file or review X definitions from an OVAL document.

Example1: cscc -mr 2 account_lockout_duration logon_as_service

Example2: cscc --multipleRules 3
oval:mil.disa.stig.adobe.reader:def:1
oval:mil.disa.stig.adobe.reader:def:2
oval:mil.disa.stig.adobe.reader:def:3

-rr XCCDF_RULE_ID_REGULAR_EXPRESSION --ruleRegex XCCDF_RULE_ID_REGULAR_EXPRESSION

Review all rule IDs in the selected profile that match the regular expression

Example1: cscc -rr rule_SV-213143r55.*

Example2: cscc -ruleRegex mscp.content_rule_sysprefs_.*

5.3.2 Command Line Examples

1. Review the local computer with customized report settings and do not display any data to the screen.

```
# ./cscc -o myoptions.xml -q
```

5.4 Option Descriptions and Datatypes

Below are all of the options that can be configured via the --setOpt command line parameter, which is primarily designed for advanced users to automate command line reviews. This information (with the exception of the description) can be obtained by running the --listOpt command.

```
Example:  cscc --listOpt
```

OPTION	DESCRIPTION	DATATYPE
GENERAL SCANNING OPTIONS		
reviewType	Type of review	String ('local', 'cisco', 'remote', 'multiremote' (remote/multiremote for Windows only)), cisco-remote, unix-remote, windows-unix-remote
offlineConfigPath	Target if 'reviewType' equals 'cisco', This is a fully qualified path to a valid CiscoIOS configuration text file	String
REMOTE SCANNING OPTIONS (WINDOWS ONLY)		
hostName	Target of SCC scan if 'reviewType' equals 'remote'	String
hostFile	Fully qualified path to a text file containing NetBIOS names of Windows computers, one per line	String
multiRemoteMode	Mode to determine how to create/select host file	String (Host File, Entire Domain, Selected OU)
remoteWindowsOU	Name of OU (or OU's), delimited by ;	String
remoteWMIEnabled	This option used to determine if remote Windows scans should be WMI based	Boolean (0/1)
alternateWMICredentials	Use other credentials for WMI bases scans	Boolean (0/1)
WMI/SSH REMOTE SCANNING OPTIONS		
remoteScanHostCooldown	Number of seconds between SSH/wmi connections. This will slow down refresh to the screen, but also decrease the number of auditable events for long running SSH scans	Integer
remoteBaseLocation_unix	Base directory to which SCC	String

	should create sub-directories for SSH based scanning. This directory must exist on the target system. Default is /opt	
remoteStartupTimeout	Number of minutes to wait before assuming SCC is unable to start on target computer	Integer
remoteMaxThreads	Maximum number of WMI scanning threads to create on 64 bit Windows	Integer
remoteMaxThreads32	Maximum number of WMI scanning threads to create on 32 bit Windows	Integer
SCAP PROCESSING OPTIONS		
ignoreCPEOVALResults	Run SCAP content even if CPE OVAL applicability fails	Boolean (0/1)
answerOCILwithSCAP	Enable answering OCIL manual questions if found in a SCAP Content Datastream	Boolean (0/1)
filterSCAPContentPerFamily	Only display (and run) content that matches the family (windows/unix/cisco)	Boolean (0/1)
downloadExternalFiles	Download external SCAP 1.2 content files	Boolean (0/1)
forceOVAL510	Force OVAL results be compliant with 5.10.1 for SCAP 1.2 validation purposes	Boolean (0/1)
saveResultsForNotApplicableContent	Force saving of results for non-applicable content to pass SCAP 1.3 validation	Boolean (0/1)
OVAL PROCESSING OPTIONS		
ignoreRemoteFileSystems	Do not perform any file searches on remote file systems	Boolean (0/1)
ignoreCase	Ignore case specific content requirements for searching files, paths, registry keys, etc	Boolean (0/1)
itemCreationThresholdEnabled	Enable setting a maximum number of items to create, to save memory usage in SCC	Boolean (0/1)
itemCreationThreshold	Numeric value for item creation threshold if itemCreationThresholdEnabled equals 1	Integer between 0 and 999999.
OVAL PROCESSING OPTIONS (UNIX ONLY)		
maskPasswords	Do not display UNIX password hashes to reports or XML files, does not impact test accuracy.	Boolean (0/1)
useGetpwent	Use the system command of getpwent instead of parsing /etc/passwd	Boolean (0/1)

`ignoreFileExtendedACL`	Do not collect extended ACL information which can be time consuming, and may not be acutally used in SCAP content	Boolean (0/1)
OVAL PROCESSING OPTIONS (WINDOWS ONLY)		
`onlyCollectSecurityPrinciples ThatHavePrivilegesAssigned`	Only report on users/groups that have access token data assigned to them, used to save time when scanning large domain controllers	Boolean (0/1)
`windowsRegistryUserAge`	Obsolete, do not use.	n/a
OCIL PROCESSING OPTIONS		
`sortOCILQuestionsByDISACAT`	Sort OCIL Questionnaires by DISA CAT level (CAT I, CAT II, CAT III)	Boolean (0/1)
`backupManualQuestionResults`	GUI only option to backup manual questions results when SCC GUI saves manual question data to file	Boolean (0/1)
`customManualQuestionAutoAnswerDirectoryValue`	Enable user selected autoanswer result directory	Boolean (0/1)
`customManualQuestionAutoAnswerDirectory`	Directory specified by the end user to obtain autoanswer	
`ignoreManualQuestionVersionChangesOnUpgrade`	Ignore XCCDF rule version when upgrading manual question results. This prevents loosing data when DISA changes XCCDF rule versions.	String (Directory)
SCAN REPORTING OPTIONS		
`allSettingsHTMLReport`	Save the All Settings HTML report at the end of each scan	Boolean (0/1)
`allSettingsTextReport`	Save the All Settings Text report at the end of each scan	Boolean (0/1)
`nonComplianceHTMLReport`	Save the Non-compliance HTML report at the end of each scan	Boolean (0/1)
`nonComplianceHTMLReport`	Save the Non-compliance HTML report at the end of each scan	Boolean (0/1)
`allSettingsSummaryHTMLReport`	Save the All Settings Summary HTML report at the end of each scan	Boolean (0/1)
`allSettingsSummaryTextReport`	Save the All Settings Summary Text report at the end of each scan	Boolean (0/1)
`nonComplianceSummaryHTMLReport`	Save the Non-compliance Summary HTML report at the end of each scan	Boolean (0/1)

nonComplianceSummaryTextReport	Save the Non-compliance Summary Text report at the end of each scan	Boolean (0/1)
sortReportsBySeverity	Sort reports by severity of each rule, grouping by CAT I, CAT II, CAT III etc..	Boolean (0/1)
limitCollectedItemsInReports	Limit the number of collected items in detailed HTML/Text reports based on user defined thresholds	Boolean (0/1)
maxOVALCollectedItemsDefPass	Threshold at which collected items that pass will be truncated from detailed reports.	Integer
maxOVALCollectedItemsDefFail	Threshold at which collected items that do not pass will be truncated from detailed reports.	Integer
XML RESULTS OPTIONS		
keepXCCDFXML	Save the XCCDF XML Results at the end of each scan	Boolean (0/1)
keepOVALXML	Save the OVAL XML Results at the end of each scan	Integer (0/1/2/3) 0 =Keep full oval 1= Keep oval without system characteristics 2 = Keep "thin" OVAL 3 = Do not keep OVAL XML
keepOCILXML	Save the OCIL XML Results at the end of each scan	Boolean (0/1)
keepARFXML	Save the ARF XML Results at the end of each scan	Boolean (0/1)
keepCPEXML	Save the CPE-OVAL results if CPE-OVAL results return false (not applicable to target)	Boolean (0/1)
SUMMARY VIEWER OPTIONS		
enableSummaryViewer	Enable the Summary Viewer HTML report to provide hyperlinks to all results from a scan	Boolean (0/1)
summaryViewerSort1	Set which field to sort the Summary Viewer Report by first	Case sensitive string (Session, Stream, Host)
summaryViewerSort2	Set which field to sort Summary Viewer Report by second	Case sensitive string (Session, Stream, Host)
summaryViewerSort3	Set which field to sort Summary Viewer Report by third	Case sensitive string (Session, Stream, Host)

LOGGING OPTIONS		
`keepScreenLogs`	Save screen logs from each application/scan session	Boolean (0/1)
`debugEnabled`	Save debug logs from each application/scan session	Boolean (0/1)
`suppress_warnings`	Don't print warnings to the error log	Boolean (0/1)
`debugExcludeDateTime`	Do not print date/time stamps on every line of debug, which allows for easier comparison between debug logs	Boolean (0/1)
`debugTraceEnabled`	Print Trace level debug, which is more than default, enable with caution	Boolean (0/1)
`maxLogFileSize`	Maximum size for logs (primarily debug) before creating a new file	Integer (MB)
OUTPUT OPTIONS		
`sharedOptions`	Save options to SCC install directory?	Integer (1 = install to shared/install directory, 0 = install to users home directory)
`userResultsDirectory`	Path to which SCC will save results	String that is an absolute directory path
`userResultsDirectoryValue`	How 'userDataDirectory' is determined	Integer (0 = User's home directory, 1 = Running Application Directory, 2 = Custom Directory)
`userConfigDirectory`	Path to which SCC will save configuration information	String that is an absolute directory path
`userConfigDirectoryValue`	How 'userConfigDirectory' is determined	Integer (0 = User's home directory, 1 = Running Application Directory, 2 = Custom Directory)
`customPathLocal`	Path to which SCC will save temporary files. Default location will be <scc install>/Local directory. This setting can only be configured via command line with --setOpt	String (Absolute Directory Path, Empty String = default location"

OUTPUT SUBDIRECTORY OPTIONS		
dirApplicationLogsEnabled	Create a subdirectory called 'ApplicationLogs' for application logs	Boolean (0/1)
dirAllSessionsEnabled	Create a subdirectory called 'Sessions' for sessions	Boolean (0/1)
dirSessionEnabled	Create a date/time subdirectory of the scan	Boolean (0/1)
dirSessionResultsEnabled	Create a results subdirectory of the date/time of the scan	Boolean (0/1)
dirSessionLogsEnabled	Create a logs subdirectory of the date/time of the scan	Boolean (0/1)
dirContentTypeEnabled	Create a results subdirectory based on content type (SCAP/OVAL/OCIL)	Boolean (0/1)
dirTargetNameEnabled	Create a results subdirectory based on the target hostname	Boolean (0/1)
dirStreamNameEnabled	Create a results subdirectory based on the content stream name	Boolean (0/1)
dirXMLEnabled	Create an results subdirectory called 'XML' for saving XML results	Boolean (0/1)
OUTPUT FILENAME OPTIONS		
fileTargetNameEnabled	Include the target hostname in the result filenames	Boolean (0/1)
fileSCCVersionEnabled	Include the SCC version in the result filenames	Boolean (0/1)
fileTimestampEnabled	Include scan date/timestamp in the result filenames	Boolean (0/1)
fileContentVersionEnabled	Include the Content version in the result filenames	Boolean (0/1)
CONTENT OPTIONS		
newerContentInstall	What to do when installing a newer version of the same SCAP benchmark	0 = Do nothing. 1 = Disable older content, 2 = Archive older content, 3 = deleted older content. Integer (0/1/2/3)
contentDevModeSkipValidation	Allow for developer mode	Boolean (0/1)
validateContent	Perform XML schema validation before scanning	Boolean (0/1)
validateContentOnInstall	Perform XML schema when installing content	Boolean (0/1)
validateDigitalSignature	Perform XML digital signature validation on SCAP 1.2 content before scanning	Boolean (0/1)
failOnXMLDSig	Do not scan if XML digital	Boolean (0/1)

	signature validation fails	
validateXMLResults	Perform XML schema validation on XML results generated by SCC	Boolean (0/1)
UPDATE OPTIONS		
httpProxyType	The type of proxy to be used for HTTP request. 0 for system proxy, 1 for env proxy, 2 for no proxy, and 3 for custom proxy	Integer (0-3)
httpProxyURL	URL to use for a custom proxy	String
appCheckForUpdates	Check for SCC application Updates	Boolean (0/1)
appUpdateCheckFrequency	Days between checking for updated SCC	Integer (>0)
appUpdateLastCheck	UNIX time of last SCC app update check	Integer
appUpdateURL	URL to SCC update file	String
contentCheckForUpdates	Check for content Updates	Boolean (0/1)
contentUpdateCheckFrequency	Days between checking for updated content	Integer >0
contentUpdateLastCheck	NIX time of last content update check	Integer
includeDraftContent	Include pre-release (draft/test) content	Boolean (0/1)
contentRepository	List of content repository URL's	String(s)
DEVELOPER OPTIONS: MISC THRESHOLDS		
maximumRecentReports	Number of recent reports (or scan sessions) to save in the Recent Reports menu	Integer
freeSpaceThreshold	Minimum amount of free space before stopping scan	Integer (MB)
validationThreshold	Maximum file size of XML input or output to perform schema validation on	Integer (MB)
externalcmdTimeout	Number of seconds to wait for external commands to return data	Integer (Seconds)
SSH RESULT FILE TRANSFER OPTIONS		
sshEnabled	Enable sending of results via SSH after each scan	Boolean (0/1)
deleteOnTransferReports	Delete local results after sending to server via SSH	Boolean (0/1)
sshServer	Name of ssh server to send results to	String that is a hostname or ip address
sshPortNumber	Port number for SSH	Integer between 0 and 65536

		Integer (0 = username, private key and passphrase; 1 = username and password)
sshConnectionType	SSH Connection Type	
username	SSH Username	String that is a proper username
sshUserPassword	Encrypted by SCC, cannot be edited manually	String
sshPrivateKey	Full path to user's private key for SSH connections	String
sshUserKeyFile	SCC generated keyfile for use with SSH	String
sshKeyPassphrase	Encrypted by SCC, cannot be edited manually	String
sshServerDirectory	Directory on the SSH in which to send results	String
POST SCAN SCAP SUMMARY REPORTING OPTIONS		
summarySourceDirectory	Source directory for post scan SCAP summary reports	String that is an absolute directory path
summaryDestinationDirectory	Destination directory for post scan SCAP summary reports	String that is an absolute directory path
openSummaryDestinationDirectory	Open Windows Explorer to the directory containing the reports (Windows only)	Boolean (0/1)
computerListHistoricalHTMLReport	Generate the Computer List Historical HTML report	Boolean (0/1)
computerListHistoricalExcelReport	Generate the Computer List Historical Excel report	Boolean (0/1)
computerListHTMLReport	Generate the Computer List HTML report	Boolean (0/1)
computerListExcelReport	Generate the Computer List Excel report	Boolean (0/1)
siteSummaryHTMLReport	Generate the Site Summary HTML report	Boolean (0/1)
siteSummaryNonComplianceHTMLReport	Generate the Site Summary Non Compliance HTML report	Boolean (0/1)
siteSummaryExcelReport	Generate the Site Summary Excel report	Boolean (0/1)
siteSummaryNonComplianceExcelReport	Generate the Site Summary Non Compliance Excel report	Boolean (0/1)
POST SCAN SCAP DETAILED REPORTING OPTIONS		
detailSummarySourceDirectory	Source directory for post scan SCAP Detailed reports	String
detailSummaryDestinationDirectory	Destination directory for post scan SCAP Detailed reports	String
openDetailSummaryDestinationDirectory	Open Windows Explorer to the directory containing the reports (Windows only)	Boolean (0/1)

POST SCAN OVAL DETAILED REPORTING OPTIONS		
`detailSummaryOVALSourceDirectory`	Source directory for post scan OVAL Detailed reports	String
`detailSummaryOVALDestinationDirectory`	Destination directory for post scan OVAL Detailed reports	String
`openDetailSummaryOVALDestinationDirectory`	Open Windows Explorer to the directory containing the reports (Windows only)	Boolean (0/1)
POST SCAN SCAP/OVAL SHARED REPORT GENERATION OPTIONS		
`allSettingsHTMLReportDetailSummary`	Regenerate the All Settings HTML Report	Boolean (0/1)
`allSettingsTextReportDetailSummary`	Regenerate the All Settings Text Report	Boolean (0/1)
`nonComplianceHTMLReportDetailSummary`	Regenerate the Noncompliance HTML Report	Boolean (0/1)
`nonComplianceTextReportDetailSummary`	Regenerate the Noncompliance Text Report	Boolean (0/1)
`allSettingsSummaryHTMLReportDetailSummary`	Regenerate the All Settings Summary HTML Report	Boolean (0/1)
`allSettingsSummaryTextReportDetailSummary`	Regenerate the All Settings Summary Text Report	Boolean (0/1)
`nonComplianceSummaryHTMLReportDetailSummary`	Regenerate the Noncompliance Summary HTML Report	Boolean (0/1)
`nonComplianceSummaryTextReportDetailSummary`	Regenerate the Noncompliance Summary Text Report	Boolean (0/1)
THRESHOLD OPTIONS		
`thresholdsEnabled`	Enable usage of thresholds	Boolean (0/1)
`thresholdsProfile`	Allows usage of a different thresholds file value of 'default' translates to 'default-thresholds.xml'	String
`thresholdsUnlockCode`	Code generated by SCC Unlocker, to allow end users to modify thresholds	String
SCC SERVICE OPTIONS (WINDOWS ONLY)		
`frequency`	How frequently SCC Service should run	Integer (0 = Custom, 1 = Hourly, 2 = Daily, 3 = Weekly, 4 = Monthly)
`schedule`	Custom schedule if 'frequency' = 0	Integer (Hours)
`randomizeSSHTransfer`	Delay SCC Service (and SSH transfer) by a random amount of time to prevent DDoS if numerous computers are configured with the SCC	Boolean (0/1)

	service and SSH transfer	
`randomizeValue`	Max amount of time to delay starting SCC	Integer (seconds)
`timeout`	Programmatically calculated by SCC, do not edit	Integer
`lastServiceScan`	Programmatically calculated by SCC, do not edit	Integer
`nextServiceScan`	Programmatically calculated by SCC, do not edit	Integer
INTERNAL OPTIONS - DO NOT EDIT		
`version`	Version of SCC, do not edit	String
`timeStamp`	date/timestamp of last write to options, do not edit	Integer
`expignore`	Over-ride software expiration for pre-release versions	Boolean (0/1)
`scap12DBFilepath`	Relative path to the SCAP 1.2 content database, do not Edit	String
`iaControlDBLoaded`	Is the IA Control database loaded	Boolean (0/1)
`iaControlDBFilepath`	Relative path to the IA Control mappings database	String
`nvdcceFile`	Filename (no path) to the NVD CCE xml file	String
`cciFile`	Filename (no path) to the DISA CCI xml file	String

5.5 Generating Post Scan Reports from the Command Line

If a large number of files are collected on a share that is accessed via a LAN or WAN, it may be most time effective to generate the reports via command line on the server that contains the collection of files. This allows for a scheduled task to be created that can be run on a user specified time frame.

For example, if 100,000 computers are reviewed, it will likely take many hours to generate the summary reports. Ideally, this could be run during an evening a day after all of the results are created.

This functionality requires configuring a custom options.xml file with the GUI, and calling the application via command line with specific parameters.

5.5.1 Post Scanning Report Generation Parameters

Below are the parameters available for creating reports after XML results have been created. All of the following options must be used individually, and are not compatible with any other parameter.

To see the help related to informational parameters run '**# ./cscc --help info**'

```
############################################################

POST SCAN REPORT GENERATION PARAMETERS:

Below are the parameters available for creating reports after XML
results have been created. All of the following options must be used
individually, and are not compatible with any other parameter.


-s OPTIONS_FILEPATH, --summaryReports OPTIONS_FILEPATH

Generate SCAP summary reports using the specified options file.

Example: # ./cscc -s options.xml

Example: # ./cscc --summaryReports myOptions.xml


To set the source path for finding XML files to create summary
reports from use the following


    cscc  # ./cscc --setOpt summarySourceDirectory <Path to XCCDF
    results>


To set the source path for finding XML files to create reports from
use the following


    cscc  # ./cscc --setOpt summaryDestinationDirectory <Directory
    to save reports>


-ts OPTIONS_FILEPATH, --detailedSCAP OPTIONS_FILEPATH
```

Generate detailed reports for SCAP using the specified options file.

Example: # ./cscc -ts options.xml

Example: # ./cscc --detailedSCAP myOptions.xml

To set the source path for finding XML files to create detailed SCAP reports from use the following

```
cscc  # ./cscc --setOpt detailSummarySourceDirectory <Path to
XCCDF and OVAL XML results>
```


To set the source path for finding XML files to create reports from use the following

```
cscc  # ./cscc --setOpt detailSummaryDestinationDirectory
<Directory to save reports>
```


 -tv OPTIONS_FILEPATH, --detailedOVAL OPTIONS_FILEPATH

Generate detailed reports for OVAL results using the specified options file.

Example: # ./cscc -tv options.xml

Example: # ./cscc --detailedOVAL options.xml

To set the source path for finding XML files to create detailed OVAL reports from use the following

```
cscc  # ./cscc --setOpt detailSummaryOVALSourceDirectory <Path
to OVAL XML results>
```


To set the source path for finding XML files to create reports from use the following

```
cscc  # ./cscc --setOpt
detailSummaryOVALDestinationDirectory<Directory to save
reports>
```

5.5.2 Informational Parameters

Below are the parameters available for information purposes only. No configuration changes or scanning occur. All of the following options must be used individually, and are not compatible with any other parameter.

To see the help related to informational parameters run '**# ./cscc --help info**'

```
####################################################
INFORMATIONAL PARAMETERS:
```

Below are the parameters available for information purposes only. No configuration changes or scanning occur. All of the following options must be used individually, and are not compatible with any other parameter.

--checkForSCCUpdates

Check to see if newer SCC releases exist via online query. Additional settings may need to be pre-configured before usage. refer to: cscc.exe --config -> Options -> Update Options This does not download or update/install SCC, it just verifies it's current.

--getOpt OPTION

Advanced user setting to retrieve the value of any SCC option. Available options can be found with --listOpt, and need to be specified exactly.

Example: cscc.exe --getOpt debugEnabled debugEnabled = 0

--listOpt

Advanced user setting to retrieve the configurable values for use with --getOpt and --setOpt

--listAllProfiles

List all profiles according to the installed content. Note that not all profiles are available to all content streams.

--listAllBenchmarks

List all benchmarks according to the content installed on the system. Useful when setting a profile for specific content.

-v, --version

Display one liner version information.

-V, --verboseVersion

Display version information.

-?, --help [config scan post-scan info]

Display this help page, by default all sections will be displayed. With optional parameter(s) of config, scan, post-scan or info specific section(s) can be displayed.

5.6 Multiple Computer Deployment

If the end user is automating the process of running the SCC software locally on multiple remote computers, below is the list of files that must be present for the application to run via command line.

- cscc
- cscc.bin
- options.xml (or any custom named options file)
- "Resources" directory, subdirectories and all files
- "Local" directory

5.6.1 Collecting Resulting Files

If the end user is pushing the command line version of the software out to the target computers, and would like to collect the results in a consolidated directory for generating multi-computer summary reports, below is documentation explaining which files to copy.

A directory structure will be created in the format (depending on user preferences), such as:

```
o  SCC
      o  Sessions
            o  <Date Time Stamp>
                  o  Results
                        o  XML
```

The XML Directory will contain the resulting ARF, OVAL and XCCDF XML files based on user preferences.

The only file required for generating the multi-computer reports is the XCCDF file, which will be in the XML directory, in the format:

<Computer>_SCC_5.10.2_<DateTime>__XCCDF-Results__<Stream>.xml

After all of the XCCDF XML files have been collected and copied to a centralized share, multi-computer summary reports can be created. Please refer to "Generating Multi-Computer Summary Reports" section of the documentation for additional information.

5.7 Manual and Hybrid Question Answer Files

SCC supports answering of non-automated questions via Manual Question Auto-Answer Files. These are text based templates based on OCIL (Open Checklist Interactive Language) XML files. SCC includes 'enhanced' STIG SCAP content, which is programmatically created from STIG Manuals and SCAP Benchmarks, to provide 100% coverage of the STIG Manual.

5.7.1 Templates Directory

Files in this directory are programatically created by SCC when content is installed, or when an end user changes the sort order of manual questions. Files in this directory should not be manually updated, as they will be overwritten, and ignored. Files from this directory should be copied to the Completed Files directory

Templates are located in SCC's Resources/Content/Manual_Questions/Templates directory

5.7.2 Completed Files Directory

This directory contains all of the completed autoanswer files, either create by SCC's Manual Questions GUI interface, or edited manually by any text editor.

The default directory is SCC's Resources/Content/Manual_Questions/Completed_Files, but can be changed by the end user via SCC Options -> Scanning Options -> Manual Questions Autoanswer Completed Files Directory

5.7.3 Usage

1. Ensure that SCC's option to process manual questions is enabled SCC Options -> Scanning Options -> Process Manual Questions if found in SCAP content
2. Copy desired template(s) from the Templates directory to your Completed Files directory
   - o Important: Do not rename the file(s), or SCC will not find it.
3. Open template using a text editor
   - a. Mark answers with an X
   - b. Remove X from "Not Reviewed" line
   - c. Add any comments
   - d. Do not add/remove any other sections to this file. The only editable portions are selecting an answer with [X] and adding text based comments.
   - e. Save the file when complete
4. Run cscc to perform a scan, answers to manual questions should be applied to all future scans.

```
Example:
     ===============================================================
     Select One of the following by entering an X in the brackets
     [ ] Finding
     [ ] Not a Finding
     [X] Not Applicable
     [ ] Not Reviewed
     Enter any comments :   This is a sample comment that will be
included in XCCDF XML, HTML, Text and CKL reports.
```

5.7.4 Answering "Hybrid" Questions If found (Currently SQL Server Only)

For a background and examples of Hybrid Questions in use, refer to **Section 6** of this User Manual.

If SCC reports a failure for a Hybrid test, and if the results match your approved system documentation for that settings, you can document that approved value and SCC will use that data, if properly formatted, and use it to perform tests in future scans. Below is an example, and the user entered data is in **bold.**

```
QUESTION_TEXT     : Enter the list of database owners authorized
to be trustworthy and privileged

==================HYBRID
INSTRUCTIONS======================================
Each line will be processed in order priority, and only the
first value found
that is applicable is applied to a target, so a target of 'ALL'
should only be used last in a list.
<SCOPE>:<TARGET>=<VALUE1>,<VALUE2>,<VALUE3>
SCOPE: COMPUTER, INSTANCE or DATABASE
If SCOPE is COMPUTER, TARGET can be one of: <ComputerName> or
'ALL' (where ComputerName is the NetBIOS name)
If SCOPE is INSTANCE, TARGET can be one of:
<ComputerName>\<InstanceName>, <InstanceName> or 'ALL'
If SCOPE is DATABASE, TARGET can be one of:
<ComputerName>\<InstanceName>\<DatabaseName>, <DatabaseName> or
'ALL'
VALUE FORMAT: Single value, or comma separated values (where
values are 'database_owner')
Refer to SCC User Manual Section 6 for more information and
detailed examples
==================END HYBRID
INSTRUCTIONS===============================
ENTER AUTHORIZED VALUES BELOW AS
<SCOPE>:<TARGET>=<database_owner>,<database_owner>,<database_ow
ner>
DATABASE:ALL=dbo
ENTER AUTHORIZATION (Document Name, Page, ISSO/ISSM/DBA,
etc):Sample-SSP.docx, Page 2, Joe ISSM approved.
```

All future scans will you the value of 'dbo' and if that is what is what the system returns, the check will now pass.

SCC will also provide your Authorization information, entered after "ENTER AUTHORIZATION" as part of all SCC results, to justify your values to auditors.

5.7.5 Warnings if autoanswer files are not found

If SCC finds enhanced content that contains Manual Questions, and no Manual Question autoanswer file is found, SCC will print a warning during each scan, and all manual question results will be reported as not reviewed.

5.7.6 Interaction with SCC GUI

SCC's graphical Manual Questions feature imports files from the Completed_Files directory before making updates, so editing either manually via text editor or SCC GUI, or both should work as expected, unless both methods are used at the same time, and then the last one to save will win.

5.7.7 Upgrading manual question results from an older version of SCC

Starting with SCC 5.7 (on Windows) SCC will prompt to upgrade configuration and manual question results on first launch. If the manual question results are configured to be stored in the application installation directory (default), SCC will copy the files from 5.7 to 5.7.1 etc. If the manual question results directory has been configured to a custom directory, SCC 5.7.1 will use that custom directory, as a side effect of the configuration upgrade.

For Linux: When using package based installation, with the RPM or DEB upgrade method selected, SCC will install to the same directory as previous versions, upgrade the configuration to the current version, and have all of the manual questions results available.

5.7.8 Converting manual question results from one version of SCAP content to another

Starting with SCC 5.7.1, SCC now automatically converts manual question results to the latest SCAP content. Only questions that match the same XCCDF rule and version are updated, so if any change is made to an XCCDF rule in the updated STIG manual, answers will not be converted and those questions will need to be re-answered.

5.7 Editing Options

The SCC application has many end user customizable options, although the installation defaults are those most frequently used. After using SCC a few times, the end user may want to adjust some of these options, depending on their personal preferences.

5.7.1 Scan Options

5.7.1.1 SCAP Processing

OPTION	DESCRIPTION
Run all content regardless of applicability	This option will ignore the content's CPE-OVAL results and continue processing the content against the system. This option can be used to run content that is not normally applicable to the target system (e.g. Red Hat SCAP content on a Debian system). Note that this option alters the standard SCAP rules for gathering certain objects which can result in incomplete results and/or false positives.
Process Manual Questions if found in SCAP content	This option will ignore any manual questions in the content and cause any XCCDF rule that is a manual question to be excluded from XCCDF results. This will disable the creation of DISA CKL reports, as all rules are required for CKL reports. This will remove any warnings that SCC would normally print if manual question results were not found for a given content stream.
Attempt to download external OVAL and XCCDF Tailoring files	This option allows the user to disable the SCAP 1.2 requirement of attempting to download OVAL and/or XCCDF Tailoring files from the internet, if specified in the content. If this option is enabled (default) and the SCAP 1.2 datastream lists a http reference for the OVAL or XCCDF Tailoring component, SCC will attempt to download it, and store it locally. Once it has been downloaded, it does not attempt again. This feature is not currently used by any production NIST or DISA SCAP content, but the feature is required for SCC to obtain SCAP 1.2 validation.
Force OVAL results to 5.10.1 for SCAP 1.2 interoperability	SCC by default saves results in OVAL 5.12.1. However, this option could be enabled by the user for certain usage (primarily SCAP 1.2 validation) or tools that import OVAL results (but only support OVAL 5.10.1).
Save results when content is not applicable for SCAP 1.3 interoperability	This option is designed to force SCC to create XML results even when content is not applicable to the target. It could be used for troubleshooting debugging purposes, but is primarily intended to only be used as part of NIST SCAP 1.3 validation, which has a test case which mandates SCAP validated tools create results when content is not applicable.

5.7.1.2 OVAL Processing

This set of options allows SCC to process currently available content in an efficient and accurate manner, however it does not comply with the letter of the law when it comes to the OVAL standard.

OPTION	DESCRIPTION
Ignore remote file systems during OVAL file scans	This option will ignore remote file systems, such as Windows shares, and UNIX NFS mount points. This option could be specified in the SCAP content as well, but in all of the publicly available SCAP content to date, the content authors have not specified to skip scanning of remote file systems. If this option is disabled, and the SCAP content does not specify to exclude remote file systems, SCC will scan all drives/mount points on the system, and will likely cause the application to slow down, dramatically in certain cases, and the results will potentially include issues from the server hosting the remote files. Until SCAP content is updated to ignore remote file systems, it is recommended to keep this option enabled in SCC.
Treat the OVAL 'equals' operation as 'case insensitive equals'	This option allows end users to override the instructions in the OVAL content and to ignore case of files and directories. Ideally this should be specified in the OVAL content, and enabling this option will cause warnings that results may not be as intended by the content author.
Ignore File Extended ACL Attributes	This option will skip collecting the boolean UNIX file attribute which indicates if the file has an extended ACL associated with it. This attribute requires running a time consuming process for each file on the file system, and none of the SCAP content currently available publicly for Linux or Solaris performs any checks related to this attribute. Until SCAP content is updated to perform checks based on the extended file acl attribute, it is recommended to keep this option enabled in SCC
Do not save passwords or shadow hashes to OVAL results	This option will keep SCC from printing password and/or shadow hashes in the OVAL results The internal tests will be performed using the actual hash, so the end result of the test should not be impacted by this. The XML results and HTML/Text reports will list the following as the hash: [MASKED PASSWORD FIELD]
Domain Controllers: Process the OVAL accesstoken_test by user right	The Windows accesstoken_test will collect user right information for all user accounts even if the accounts have no rights. Under certain circumstances (domain controllers), this could result in the collection of thousands of user accounts which may lead to extremely large result files and/or memory errors. If this option is enabled, then user right information will be collected only for user accounts that actually have user rights assigned.
Use system function 'getpwent' to process OVAL Password test	This option allows the user to specify the method for the UNIX passwd test. The default (unchecked) instructs SCC to literally read the /etc/passwd file. Enabling this option (checked) instructs SCC to use the

(checked) or read the '/etc/passwd/ file	getpwent system call, which collects users from the /etc/passwd file along with any external authentication source such as LDAP, NIS and others. The primary downside of using getpwent method is that it does not return back the password field in the same format as the /etc/passwd file, so any content looking to check for shadowed passwords may not be accurate.
Enable OVAL item creation threshold	In certain circumstances, a combination of content issues, or system configuration can cause large numbers of OVAL items to be created. This causes two primary issues, the first being SCC's memory and CPU usage during the scan will increase, potentially to the point of crashing. Secondly, if SCC is able to complete the scan, the resulting XML files will be too large to create any Text or HTML reports from. This option caps the number of OVAL items created, on a per OVAL test basis, to the number specified in the form. This option can be updated by the user depending on their preference. If SCC runs out of memory and crashes even with this option enabled, it is recommended to lower the threshold by a sizable amount and re-run. If SCC reaches the threshold for a single test, the end result of the test will be 'error' as SCC will skip processing any additional items, and will not be able to make a final determination of compliance with regards to pass/fail, and the end user will likely need to perform the check manually to determine true compliance. This should not be a common occurrence, and the content author may need to be contacted, to determine if the test can be written in a method which does not create such a large volume of results. This option is enabled by default. By default, the OVAL Item Creation Threshold is set at 50,000. This field is guarded by input validation and will only allow a user to enter an integer between 0 and 999999. Any input outside of those values will result in an error and the option will not be allowed to be saved.

5.7.1.3 Manual Question Processing

OPTION	DESCRIPTION
Sort Questionnaires by DISA CAT (CAT I, CAT II etc..)	This option sorts Manual Questions, both in the SCC GUI and in the Manual Question text based autoanswer templates to be sorted by severity, displaying CAT I items first, followed by CAT II etc... If this option is disabled, questions will be displayed in the order they were found in the DISA STIG Manual.
Regenerate Templates	This option allows the end user to regenerate all Manual Autoanswer Templates. This does not update any existing completed autoanswer file(s).
Backup Manual Question Results with	This option only applies to SCC GUI when saving manual question results from SCC's Manual Question editing form. When enabled, this option causes SCC to create a backup of the Manual Question results to a

datetime/username to a Backups sub-directory	subfolder of Completed_Files each time "Save Document and Close" is pressed. This creates a backup file with the date/timestamp and the username of the person logged into the computer. These files can be used to manually restore a backup, or show changes with diff utilities. Refer to Section 4.6.2.2 for more information.
Ignore XCCDF rule 'version' changes when upgrading manual questions	Due to the mass re-versioning of DISA STIG Manual rules for July 2024, which put a new rule version on every single rule regardless of other changes to the rule, this option has been created and enabled by default. If this option is disabled, any manual question that does not match the rule and version from the current DISA STIG will be excluded when upgrading manual questions.

5.7.1.4 Manual Question AutoAnswer Completed Files Directory

OPTION	DESCRIPTION
Obtain Manual Question AutoAnswer Files from the default directory	This option sets SCC to obtain Manual Auestion autoanswer files from <SCC Install>Resources/Content/Manual_Questions/Completed_Files/
Obtain Manual Question Autoanswer files from a Custom Directory	This option sets SCC to obtain Manual Questions autoanswer files from any end user specified directory. This also instructs the SCC GUI to save Manual Questions to this custom directory.

5.7.1.5 WMI/SSH Remote Scanning Options

OPTION	DESCRIPTION
Maximum local threads for performing remote WMI or SSH scan	This option allows the end user to determine the number of local threads for parallel scanning with WMI and SSH based scanning. Each thread takes about 30 MB of RAM. More threads will speed up large remote scans, but could cause slowdowns or issues on the local computer.
Maximum minutes to allow SCC to start on remote system	This option allows the end user to specify a maximum amount of time to wait for SCC to be launched on the remote computer. This may fix issues on certain slow remote systems, especially with certain anti-virus products and features enabled that slow down extraction of zips and cabs.

5.7.1.6 SSH Remote Scanning Options

OPTION	DESCRIPTION
SSH: Remote Base Directory, SCC will make a sub-dir of 'scc-remote'	Directory to copy a temporary copy of SCC for remote SSH based scans. This directory must exist, and should exist on it's own partition if possible. Default is /opt. SCC will create a subdirectory called 'scc-remote' in the specified directory, which it will install a temporary copy of SCC, and a results subdirectory for scanning logs and results.

	The <remote base directory>/scc-remote directory will be removed after each remote SSH scan.
Uninstall Remote UNIX SSH Plugin	This allows for the removal of the remote plugin from the scanning computer.

SSH: Allow SCC to temporarily whitelist itself on target RHEL 8 and Oracle Linux 8	**For RHEL 8 and Oracle Linux 8 targets:**
	
	This option allows for remotely scanning STIG compliant RHEL 8 and Oracle Linux 8 computers, which requires enabling application whitelisting with fapolicy daemon.
	
	As this option temporarily change the configuration of the target system, this option is disabled by default. Below is an overview of what SCC does, should the end user want to enable this feature:
	
	1. From the scanning computer, after the temporary files are copied to the target computer in the user specified directory (default is /opt/scc-remote), the scanning computer runs the following command to whitelist cscc-remote via SSH:
	
	`fapolicy-cli -f add /opt/scc-remote/cscc-remote`
	
	`fapolicyd-cli --update`
	
	2. Then cscc-remote is called and it whitelists all of it's known binaries with the same method as #1
	
	3. cscc-remote scans the computer
	
	4. When csc-remote completes, the scanning computer then removes the directory and all files/subdirectories with the following via SSH:
	
	`fapolicyd-cli -f delete /opt/scc-remote/`
	
	`fapolicyd-cli --update`
	
	To summarize, SCC uses the system command (if found) of fapolicyd-cli to whitelist a known list of binaries that comprise the SCC application before a scan starts, and when the scan completes, the whitelist is then removed from the target computers fapolicy database.

5.7.2 Content Options

5.7.2.1 Installing Newer Versions of Existing SCAP Content

OPTION	DESCRIPTION
Do Nothing, leave older content as-is when installing newer versions	This option leaves any older version of content as installed, and if it's enabled, it remains enabled.
Disable older versions of matching content	This options leaves the older version of content as installed, but disables it.
Archive older	This option moves the older version of content to

versions of matching content	<install>\Resources\Content\Archived_Content
Delete older versions of matching content	This option will delete any older version of matching content.

5.7.2.2 XML Schema Validation

OPTION	DESCRIPTION
Perform XML Schema Validation on Input Files during Installation	This option validates that the XML content is syntax error free before installing new content into SCC.
Perform XML Schema Validation on Input Files before scanning	This options validates that the XML content is syntax free before SCC uses it for each scan.
Perform XML Schema Validation on Output Files	This options validates that the XML result files are syntax and error free after creation.

5.7.2.3 XML Digital Signatures

OPTION	DESCRIPTION
Perform XML Digital Signature Validation before scanning	This option will validate signed XML content files prior to execution.
Cancel Scan(s) on XML Digital Signature Validation Failure	This option will automatically cancel a scan if the signed XML file(s) fail XML digital signature validation.

5.7.2.4 Content Developer Mode

OPTION	DESCRIPTION
Allow non schema validated content via manual installation	This option is reserved for content developers. As of 5.1, SCC strictly validates all content against the appropriate content schema prior to any scan (not just on installation). Since this security feature can be disruptive during content development testing with SCC, this option allows for a relaxation of that feature.

5.7.3 Reporting Options

5.7.3.1 Select Reports

REPORT	DESCRIPTION
All Settings	This report contains detailed pass and fail results from each check performed. It is a large report and is not intended for printing
All Settings Summary	This report contains a summary of pass and fail results from each check performed.
Non-Compliance	Non-compliance reports contain detailed results from each failed check.

	It is a large report and is not intended for printing
Non-Compliance Summary	This report contains a summary of failed checks

5.7.3.2 Report File Types

FORMAT	DESCRIPTION
HTML	HTML formatted reports for viewing with a web browser
Text	Plain Text reports for viewing with a text editor such as Notepad or Wordpad.

5.7.3.3 Report Sorting

FORMAT	DESCRIPTION
Sort HTML/Text reports by XCCDF rule Severity, and group by automated/manual	With this option enabled, SCC's reports will be sorted by severity and then groups by Automated/Manual. If this option is disabled, SCC's reports will be sorted in the same order as the STIG manual, with no groupings.

5.7.3.4 Collected Item Tresholds

REPORT	DESCRIPTION
Only display a user defined number of collected items	This option prevents the All-Settings and Non-Compliance HTML and/or Text reports from getting extremely large if SCAP content contains file/user test that collect items for thousands or millions of files/directories and users. This does not impact the accuracy of the check, it just limits the number of detailed finding to include in reports.
'pass' threshold	This is the number of collected items that pass to include for each test. Default is 100
'fail' threshold	This is the number of collected items that do not pass to include for each test. Default is 1000

5.7.3.5 XML Results

OPTION	DESCRIPTION
Save XCCDF XML files	This option allows the user to disable saving the XCCDF XML files after the review. It should always be enabled unless drive space is limited. If this option is not enabled, multiple computer summary reports cannot be created.
Save OVAL XML files - Full with System Characteristics	This option allows the user to enable saving the OVAL XML files, which contain the detailed results from each review, and can be very helpful in debugging problems, or recreating reports after scans occur.
Save OVAL XML files - Full without System Characteristics	This option allows the user to save a slightly less verbose version of OVAL results, which exclude the System Characteristics, and is required by SCAP 1.2.
Save OVAL XML files - Thin	This option allows the user to save even less data to OVAL results, which exclude the System Characteristics and Test results, and is required by SCAP 1.2.

Do Not Save OVAL Results	This option allows the user to not save OVAL XML results after each scan is complete.
Save OCIL Results	This option allows the user to disable saving OCIL XML files (if content includes OCIL content).
Save NIST ARF XML files	This option creates the NIST SCAP 1.2/1.3 Asset Reporting Format (ARF), which may be useful if an AFT results consumer is being used, or for testing official SCAP capabilities.
Save DISA Checklist 'CKL' file when using content enhanced with Manual Questions	When running NIWC Enhanced SCAP content, which contains Manual Questions, create the DISA Checklist 'CKL' report, which can be used by systems such as eMASS, and eliminates the need to use the STIG Viewer to import SCC results, answer manual questions and export CKL results. Creating CKL results from 'standard' DISA SCAP content is not supported, as DISA SCAP benchmarks do not contain all of the rules from the STIG Manual, only those that are automated.
Save Failed CPE XML result files	This option enables saving of Common Platform Enumeration (CPE) results for SCAP streams that are not applicable to the target system. This option should only be enabled for debugging why a SCAP stream is not performed against a target system. Enabling it will create numerous small XML files, which are not required for any other reporting purpose.

5.7.3.6 Summary Viewer

OPTION	DESCRIPTION
Save Summary Viewer	This option saves an HTML report that is created at the end of each scan, and provides an easy way to see all of the HTML/Text/XML results created by SCC during that scan session.
Summary Viewer Sorting	The summary viewer HTML report can be sorted by three fields. This report is primarily useful if more than one computer or content stream is used. Below is the default sort order and a description of each: 1. Session: The date/timestamp from when the scan started. 2. Stream : The SCAP content or OVAL datastream name being used 3. Host : The hostname for the target computer(s) being scanned. Note: The Summary Viewer can also be sorted manually by clicking on any column of the report after it's generated.

5.7.3.7 Scan Sessions

OPTION	DESCRIPTION
Save Scan Session Information (directory, scores, filenames)	This option enables creating a scan session database which resides in the root of the SCC results directory, and allows for easy viewing and searching and deleting of existing SCC scan sessions.
Double Clicking any log, report or XML	This option instructs SCC to open SCC created files with a fie viewer internal to SCC. If this option is disabled, SCC will attempt to open the

file in the session viewer in SCC opens	file with the Operating System default file viewer based on the file type, although on many linux distributions, this may not work well, as SCC is run as root, and HTML and PDF viewers may not be allowed to run as root.

5.7.4 Logging Options

5.7.4.1 Logging Options

OPTION	DESCRIPTION
Save Screen Log	This option saves the analysis log printed to the "Status" screen to a text file for viewing after the review.
Save Debug Log	This option saves a large amount of additional information related to what occurred during a review. This option is disabled by default and should only be used when attempting to resolve errors in the application, as it will slow down the application and potentially use large amounts of disk space. Please refer to Appendix A.8 Debugging for additional information on SCC debug logs and their intended usage.
Enable Verbose 'TRACE' Level Debug	This option saves even more debug at a very verbose level that is only be recommended to debug crash type issues, as it may generate GB of text and slowdown SCC in general. This option is only available if Save Debug Log is enabled.
Suppress Warnings	This option will prevent warnings from being reported. As warnings are not critical, this option may be desired for certain users. This option may be useful in conjunction with 'ignore remote file systems' and 'ignore case' listed in the File Scanning section.

5.7.5 Output Options

5.7.5.1 Configuration Save Location

OPTION	DESCRIPTION
Save Configuration to the User's Home Directory	This option dynamically sets the base directory in which SCC saves it's configuration (5.10.2_options.xml) on a per-user basis. *Ex: /home/TestUser/* *SCC/Config/5.10.2_options.xml*
Save Configuration to the Running Application Directory	This option sets the based directory in which SCC saves it's configuration (options.xml) to the location SCC is running/installed. *Ex: /opt/SCC/options.xml*

5.7.5.2 SCC Security Configuration Directory Options

This is a new option for SCC 5.3, and currently contains the SSH Host Credential Database, SSH trusted keys, and other security related items related to SSH. In the future it could contain other security related configuration.

If SSH based scanning is not used, this directory may not exist, and the SSH Host Credential Database is not created until it is used.

OPTION	DESCRIPTION
Save SCC's Security Configuration to the User Home Directory	This option dynamically sets the base directory in which SCC saves it's security configuration to each user's home directory. This option is recommended, both for increased security, and to prevent it's accidental removal, as the host credential database is designed to work across multiple installations of SCC. *Ex: /home/TestUser/SCC/Config*
Save SCC's Security Configuration to the Running Application Directory	This option sets the based directory in which SCC saves it's security configuration to the location SCC is running/installed. Note: This setting is not recommended, due to potential security issues, and loss of credential data if SCC is uninstalled/reinstalled into the same directory. *Ex: /opt/scc/Config*
Save SCC's Security Configuration to a Custom Directory	This option allows the end user to specify any custom directory to save SCC's security configuration. This field is guarded by input validation and will only allow a user to enter an absolute directory path that exists. Any input outside of those values will result in an error and the option will not be allowed to be saved.

5.7.5.3 SCC Results Directory Options

OPTION	DESCRIPTION
Save Results to the User Home Directory	This option dynamically sets the base directory in which SCC saves all Logs and Results on a per-user basis. *Ex: /home/TestUser/SCC*
Save Results to the Running Application Directory	This option sets the based directory in which SCC saves all Logs and Results to the location SCC is running/installed. *Ex: /opt/SCC/*
Save Results to a Custom Directory	This option allows the end user to specify any custom directory to save all SCC Results and Log. This field is guarded by input validation and will only allow a user to enter an absolute directory path that exists. Any input outside of those values will result in an error and the option will not be allowed to be saved.

5.7.5.4 SCC Results Subdirectory Options

OPTION	DESCRIPTION

Create 'ApplicationLogs' subdirectory	This option creates a directory to store SCC application logs (those not related to performing a SCAP content scan session)
Create 'Sessions' subdirectory	This creates a base directory to store all scan sessions.
>| Create 'Date/Timestamp' subdirectories	This option automatically creates a subfolder with the 'Date/Timestamp' within the results directory. (This option is highly recommended, as it's required for new scan session viewing feature.)
>>| Create 'Results' subdirectory	This option automatically creates a subfolder of 'Results' within the Sessions directory
>>| Create 'Logs' subdirectory	This option automatically creates a subfolder of 'Logs' within the Sessions directory, as s sibling of the 'Results' directory. These 'scan' logs will be directly related to the HTML/Txt/XML files in the 'Results' directory.
>>>|Create 'SCAP', 'OVAL', 'OCIL' and 'ApplicationLog" directories	This option automatically creates a subfolder based on the content 'SCAP', 'OVAL', 'OCIL' within the results directory, and ApplicationLogs within the Logs directory
>>>|Create 'Content Name' Subdirectories	This option automatically creates a subfolder with the 'Content Name' within the results directory. (This option is disabled by default.)
>>>>>|Create 'Target Name' Subdirectories	This option automatically creates a subfolder with the 'Target Name' within the results directory. (This option is disabled by default.)
>>>>>>|Create 'XML Subdirectory	This option automatically creates a subfolder called XML

5.7.5.5 SCC Report Filename Options

OPTION	DESCRIPTION
Target Name	This option adds the target host name to resulting report filename. *Ex: Computer1_All-Settings_Mozilla_Firefox.html*
SCC Version	This option adds the SCC version to the report filename: *Ex: Computer1_SCC-5.10.2_All-Settings_Mozilla_Firefox.html*
Content Version	This option adds the content version to the report filename: *Ex: Computer1_SCC-5.10.2_All-Settings_Mozilla_Firefox-001.015.html*
Date/Timestamp	This option adds a date/timestamp to the report filename: *Ex: Computer1_SCC-5.10.2_2021-02-17_125008_All-Settings_Mozilla_Firefox-001.015.html*

5.7.5.6 Permission Options

OPTION	DESCRIPTION
Allow SCC to set restricted	This option allows SCC to set restricted permissions on the Logs and Results (XML, Text, HTML) created by SCC. This can be useful especially

permissions on SCC created Logs and Results	if results are set to write back to the application install, or some other location were non-privileged users have read access. On Unix: SCC sets the permissions to be the user running SCC and root Disabling this option defaults back to the OS defaults.

5.7.6 SFTP Report File Transfer Options

SCC has the ability to copy results after each scan via SFTP to a centralized server for easier data collection. This option is not related to SSH based scanning, refer to section 4.3 for SSH based scanning of UNIX systems.

Note: SSHv2 is supported, SSHv1 is not.
Note2: If errors occur related to known_hosts, please refer to the Known Issues section of the manual for an example.

5.7.6.1 SFTP File Transfer Options

OPTION	DESCRIPTION
Enable File Transfers	Transfer any report/log that is enabled
Delete Local Results After Transfer	This option will delete the local results off of the machine after SCC has successfully transferred the files to the SSH server

5.7.6.2 SFTP Server Information

OPTION	DESCRIPTION
Hostname/IP	Enter the DNS hostname or IP Address of the SFTP server to copy result to. This field is guarded by input validation and will only allow a user to enter a hostname or ip address. Any input outside of those values will result in an error and the option will not be allowed to be saved.
Port	Enter the port which the SFTP server is listening (normally 22) This field is guarded by input validation and will only allow a user to enter a port number between 0 and 65536. Any input outside of those values will result in an error and the option will not be allowed to be saved.
Diretory	By default, this is set as the user's home directory (e.g. /home/<username>) but can be changed here to reflect the desired directory you would like the reports to be transferred to. This field is guarded by input validation and will only allow a user to enter an absolute directory path that exists. Any input outside of those values will result in an error and the option will not be allowed to be saved.

5.7.6.3 SFTP Connection Type

OPTION	DESCRIPTION

Connection with Username/Password	Select this option if you plan to authenticate with username/password combination
Connection with Private Key/Passphrase	Select this option if you plan to authenticate with a private key. *Note: SCC only supports private keys that are secured with a private key passphrase*
Username	Required for either Username/Password or Private key authentication This field is guarded by input validation and will only allow a user to enter a proper username (eg, nothing that starts with ";"). Any input outside of those values will result in an error and the option will not be allowed to be saved
Password	Only required if Username/Password authentication has been selected
Private Key	Only required if Private Key/Passphrase authentication has been selected
Private Key Passphrase	Only required if Private Key/Passphrase authentication has been selected

5.7.7 Update Options

5.7.7.1 HTTP Connection Options

OPTION	DESCRIPTION
Use System Proxy	SCC should use the system configured proxy (or not) that has been configured as part of the OS and is used Internet Browsers
Use Environment Variable Defined Proxy	Primarily a UNIX/Linux method, but SCC looks for http_proxy or https_proxy environment variables
No Proxy	SCC connects without any proxy
Custom Proxy	Enter the proxy to be used by SCC, in the format of http://<proxy server>:<port> or https://<proxy server>:<port>

5.7.7.2 SCC Application Updates

OPTION	DESCRIPTION
Periodically Check for SCC Application Updates	Allow SCC to check for application updates when SCC launches. This feature does not download or install/upgrade SCC, it only notifies the user that an updated version is available.
Frequency (Days)	Number of days between SCC Application Checks.
SCC Update URL	Internet (or could be updated to an Intranet location) to query for SCC release information.

5.7.7.3 SCAP Content Updates

OPTION	DESCRIPTION
Periodically Check for SCAP Content Updates	Allow SCC to check for application updates when SCC launches. This feature allows the user to download and install updated content into SCC.

Frequency (Days)	Number of days between SCC Application Checks.
Include pre-release (Draft/Test) versions of SCAP Content	Internet (or could be updated to an Intranet location) to query for SCAP Content information.

5.7.7.4 SCAP Content Repository Options

OPTION	DESCRIPTION
Add Repository URL	Press the Add Repository URL button to add a URL to the repository list.
Edit	Edit an existing URL by right clicking on it, and clicking Edit.
Delete	Delete repository URL by right clicking on it, and clicking Delete.
Delete All	Delete all repository URL's by right clicking and selecting Delete All.

7. HYBRID TESTS

Hybrid Checks are a new feature of SCC 5.9 and later, and are only used in very specific use cases, primarily with MS SQL Server Instance and Database STIGs. Many of the requirements of the SQL STIGs require comparing the system configuration against user/system documentation. This means that the 'requirement' for automating a test is user defined, and historically have been manual checks, which require users to manually gather the system configuration and manually compare those settings against user/system documentation.

If Hybrid tests exists in content, they will be visible in the Manual Questions, both in the GUI and the command line (text file based) methods.

Hybrid tests take user input in an specific XML format and use it as the requirement to determine if the system configuration passes or fails. Refer to section 4.6.2 for instructions on using SCC's graphical variable builder, available on SCC's GUI, which guides the user to create variables described in the format below. In SCAP terminology, SCC takes this end user provided data and passes it in as an external variable, and that external variable is then used as an OVAL state to be compared against the system configuration.

The format of the data entered by the user for these checks is in the format of

```
<hybrid_variables>
    <hybrid_variable>
        <scope></scope>
        <target></target>
        <authorization></authorization>
        <authorized_values>
            <authorized_value></authorized_value>
        </authorized_values>
        <notes></notes>
    </hybrid_variable>
</hybrid_variables>
```

Where
- 'scope' can be one of COMPUTER, INSTANCE or DATABASE
- 'target' is what Computer\Instance\Database you want the value applied (see below for definitions, and examples)
- 'authorization' is documentation explaining where in system documentation the authorized values are located/approved by.
- authorized_value is usually a user, group, stored procedure, etc..
- 'notes' are completely optional, and are only for end users to explain why/how variables work, and are not included in any reports or SCAP processing.

This can be as simple as:

```
<hybrid_variables>
    <hybrid_variable>
        <scope>DATABASE</scope>
        <target>ALL</target>
```

```
            <authorization>System SSP, approved by ISSM on
            1/1/2024</authorization>
            <authorized_values>
                    <authorized_value>dbo</authorized_value>
            </authorized_values>
        </hybrid_variable>
</hybrid_variables>
```

Or a complex, and likely more real world like below.

```
  <hybrid_variables>
        <hybrid_variable>
                <scope>DATABASE</scope>
                <target>TestComputer1\parents-db</target>
                <authorization>Simpson Parents SSP, approved by Matt
                Groening on 1/1/2024</authorization>
                <authorized_values>
                        <authorized_value>homer</authorized_value>
                        <authorized_value>marge</authorized_value>
                </authorized_values>
        </hybrid_variable>
        <hybrid_variable>
                <scope>DATABASE</scope>
                <target>TestComputer1\kids-db</target>
                <authorization>Simpson Kids SSP, approved by Matt Groening
                on 1/1/2024</authorization>
                <authorized_values>
                        <authorized_value>bart</authorized_value>
                        <authorized_value>lisa</authorized_value>
                </authorized_values>
        </hybrid_variable>
</hybrid_variables>
```

Note: Each line will be processed in order priority, and only the first value found that is applicable is applied to a target, so a target of 'ALL' (if needed) should only be used last in a list.

7.1 Hybrid Scope

The SCOPE portion of the user defined data is pretty straight forward, it's just one of the following, and it tells SCC how to apply the TARGET.

- COMPUTER
- INSTANCE
- DATABASE

7.2 Hybrid Target

The TARGET is where things can get a bit complex, depending on your needs. It can be as simple as ALL, where the value you are providing is applied as a requirement for all targets, but based on end user feedback, that is not always the case, and sometimes requirements need to be for All Instances/Database on a given computer, or all Instances, or all Databases, or a single Instance, or a single Database.

7.2.1 SCOPE = COMPUTER

Target can be one of:
- <ComputerName>, where <ComputerName> is the NetBIOS name or DNS FQDN of the server hosting SQL Server.
  - All Instances and Databases hosted on this computer will get the value you define.
- 'ALL'
  - All Instances and Databases hosted on any computer will get the value you define.

7.2.2 SCOPE = INSTANCE

Target can be one of:
- <ComputerName>\<InstanceName>, where InstanceName is the name of the SQL Instance on the computer specified
  - This specific Instance, on this specific computer, and all Databases hosted by this Instance will get the value you define.
- <InstanceName>
  - This specific Instance, on any computer, and all Databases hosted by this Instance will get the value you define.
- ALL'
  - All Instances and Databases hosted on any computer will get the value you define.

7.2.3 SCOPE = DATABASE

Target can be one of:
- <ComputerName>\<InstanceName>\<DatabaseName>
  - This specific Database in this specific Instance, on this specific computer, will get the value you define.
- <DatabaseName>
  - This specific Database, on any computer or Instance, will get the value you define.
- ALL'
  - All Databases hosted on any computer will get the value you define.

7.3 Hybrid Value(s)

The value(s) portion of the end user provided data is also pretty simple, it can be one of the following
- A single string/word
- A comma separated list of strings/words

7.4 XML Example using target 'ALL'

7.4.1 Single value of 'dbo' for all databases scanned.

Below is a sample hybrid question, and the example responses are in **bold.**

```
<hybrid_variables>
    <hybrid_variable>
        <scope>DATABASE</scope>
        <target>ALL</target>
        <authorization>System SSP, approved by ISSM on
        1/1/2024</authorization>
        <authorized_values>
            <authorized_value>dbo</authorized_value>
        </authorized_values>
    </hybrid_variable>
</hybrid_variables>
```

7.5 More Complex XML Examples

The following examples are more real world style usage, based on the same Question Text from section 7.4.

7.5.1 Computer Scope

- All SQL Instances and SQL Databases on the computer 'TestComputer1' will have variables of 'dba1' and 'dba2'
- All SQL Instances and SQL Databases on the computer 'TestComputer2.testdomain.gov" will have variables of 'dba3'
- All SQL Instances and SQL Databases on all computers, except TestComputer1' and 'TestComputer2.testdomain.gov' will have a variable of 'dba4'

```
<hybrid_variables>
    <hybrid_variable>
        <scope>COMPUTER</scope>
        <target>TestComputer1</target>
        <authorization>TestComputer1 SSP, approved by ISSM on
        1/1/2024</authorization>
        <authorized_values>
            <authorized_value>dba1</authorized_value>
            <authorized_value>dba2</authorized_value>
        </authorized_values>
    </hybrid_variable>
    <hybrid_variable>
        <scope>COMPUTER</scope>
```

```
<target>TestComputer2.testdomain.gov</target>

<authorization>TestComputer2 SSP, approved by ISSM on
1/1/2024</authorization>

<authorized_values>

    <authorized_value>dba3</authorized_value>

</authorized_values>

</hybrid_variable>

<hybrid_variable>

    <scope>COMPUTER</scope>

    <target>ALL</target>

    <authorization>Network SSP, approved by ISSM on
    1/1/2024</authorization>

    <authorized_values>

        <authorized_value>dba4</authorized_value>

    </authorized_values>

</hybrid_variable>

</hybrid_variables>
```

7.5.2 Computer\Instance Scope

- The SQLInstance1 and SQL Databases in that instance on computer TestComputer1 will have variables of 'dba4' and 'dba5'
- The SQLInstance1 and SQL Databases in that instance on computer TestComputer2.testdomain.gov will have variables of 'dba6' and 'dba7'
- All other instances and databases will have an empty string variable, and would fail if results are returned from the instances/databases

```
<hybrid_variables>

    <hybrid_variable>

        <scope>INSTANCE</scope>

        <target>TestComputer1\Instance1</target>

        <authorization>TestComputer1 SSP, approved by ISSM on
        1/1/2024</authorization>

        <authorized_values>

            <authorized_value>dba4</authorized_value>

            <authorized_value>dba5</authorized_value>

        </authorized_values>

    </hybrid_variable>

    <hybrid_variable>

        <scope>INSTANCE</scope>

        <target>TestComputer2.testdomain.gov\SQLInstance1</ta
        rget>

        <authorization>TestComputer2 SSP, approved by ISSM on
        1/1/2024</authorization>

        <authorized_values>
```

```
            <authorized_value>dba6</authorized_value>
            <authorized_value>dba7</authorized_value>
        </authorized_values>
    </hybrid_variable>
    <hybrid_variable>
        <scope>INSTANCE</scope>
        <target>ALL</target>
        <authorization></authorization>
        <authorized_values>
            <authorized_value></authorized_value>
        </authorized_values>
    </hybrid_variable>
</hybrid_variables>
```

7.5.3 Instance Scope

- The instance of 'SQLInstance2' on any computer, and any databases in the 'SQLInstance2' would get the variable of 'abc' and '123'
- The instance of 'SQLInstance3' on any computer, and any databases in the 'SQLInstance3' would get the variable of def
- All other instances and databases on any computer would get the variable 'xyz'

```
<hybrid_variables>
    <hybrid_variable>
        <scope>INSTANCE</scope>
        <target>SQLInstance2</target>
        <authorization>Many System SSP, approved by ISSM on
        1/1/2024</authorization>
        <authorized_values>
            <authorized_value>abc</authorized_value>
            <authorized_value>123</authorized_value>
        </authorized_values>
    </hybrid_variable>
    <hybrid_variable>
        <scope>INSTANCE</scope>
        <target>SQLInstance3</target>
        <authorization>Many System SSP, approved by ISSM on
        1/1/2024</authorization>
        <authorized_values>
            <authorized_value>def</authorized_value>
        </authorized_values>
    </hybrid_variable>
    <hybrid_variable>
        <scope>INSTANCE</scope>
```

```
                <target>ALL</target>
                <authorization>Many System SSP, approved by ISSM on
                1/1/2024</authorization>
                <authorized_values>
                        <authorized_value>xyz</authorized_value>
                </authorized_values>
        </hybrid_variable>
    </hybrid_variables>
```

7.5.4 Database Scope

- The database of 'master' in any instance, on any computer, would get the variable of 'abc'
- The database of 'tempdb' in any instance, on any computer, would get the variable of 'def'
- The database of 'mytestDB' in any instance, on any computer, would get the variable of 'jkl'
- All other instances and databases on any computer would get the variable 'xyz'

```
    <hybrid_variables>
        <hybrid_variable>
                <scope>DATABASE</scope>
                <target>master</target>
                <authorization>Default DB SSP, approved by ISSM on
                1/1/2024</authorization>
                <authorized_values>
                        <authorized_value>abc</authorized_value>
                </authorized_values>
        </hybrid_variable>
        <hybrid_variable>
                <scope>DATABASE</scope>
                <target>tempdb</target>
                <authorization>>Default DB SSP, approved by ISSM on
                1/1/2024</authorization>
                <authorized_values>
                        <authorized_value>def</authorized_value>
                </authorized_values>
        </hybrid_variable>
        <hybrid_variable>
                <scope>DATABASE</scope>
                <target>mytestDB</target>
                <authorization>my test DB SSP, approved by ISSM on
                1/1/2024</authorization>
                <authorized_values>
                        <authorized_value>jkl</authorized_value>
```

```
        </authorized_values>
    </hybrid_variable>
    <hybrid_variable>
        <scope>DATABASE</scope>
        <target>ALL</target>
        <authorization>All DB Systems SSP, approved by ISSM
        on 1/1/2024</authorization>
        <authorized_values>
            <authorized_value>xyz</authorized_value>
        </authorized_values>
    </hybrid_variable>
</hybrid_variables>
```

7.5.5 Computer\Instance\Database Scope

- The database of 'master' in TestInstance1 on TestComputer1 ' would get the variable of 'abc'
- The database of 'master' in TestInstance2 on TestComputer2.testdomain.gov' would get the variable of 'def'
- All other instances and databases on any computer would get the variable 'xyz'

```
<hybrid_variables>
    <hybrid_variable>
        <scope>DATABASE</scope>
        <target>TestComputer1\TestInstance1\master</target>
        <authorization>Default DB SSP, approved by ISSM on
        1/1/2024</authorization>
        <authorized_values>
            <authorized_value>abc</authorized_value>
        </authorized_values>
    </hybrid_variable>
    <hybrid_variable>
        <scope>DATABASE</scope>
        <target>TestComputer2.testdomain.gov\TestInstance2\ma
        ster</target>
        <authorization>>Default DB SSP, approved by ISSM on
        1/1/2024</authorization>
        <authorized_values>
            <authorized_value>def</authorized_value>
        </authorized_values>
    </hybrid_variable>
    <hybrid_variable>
        <scope>DATABASE</scope>
        <target>ALL</target>
```

```
            <authorization>All DB Systems SSP, approved by ISSM
            on 1/1/2024</authorization>
            <authorized_values>
                    <authorized_value>xyz</authorized_value>
            </authorized_values>
        </hybrid_variable>
    </hybrid_variables>
```

7.6 What happens if I do not enter any data into Hybrid tests?

Short answer: Any test that returns any data from the target will fail.

SCC defaults all hybrid tests to

```
    <hybrid_variables>
        <hybrid_variable>
            <scope>DATABASE</scope>
            <target>ALL</target>
            <authorization></authorization>
            <authorized_values>
                    <authorized_value></authorized_value>
            </authorized_values>
        </hybrid_variable>
    </hybrid_variables>
```

Which passes in a empty value which will be used as a comparison against any data returned from the system, based on the test. Depending on your system configuration, if no data is returned, the check will pass. If any data is returned, the check will fail and you will want to review the results, and compare against your system documentation. If the system documentation matches what was returned by SCC, you will want to update the hybrid test with the value in your documentation.

6. UNDERSTANDING SCAN RESULTS

6.1 Understanding Scan Reports

6.1.1 Summary Viewer Report

By default, with each scan session, a summary viewer HTML report is created which provides hyperlinks for easy browsing of the results created from that scan session. It's saved to the root of the scan session directory.

```
Ex:  SCC_Summary_Viewer_2017-01-06_112806.html
```

This report can be sorted by clicking on any column heading, or filtered by typing a hostname, content stream etc. in the 'search' box.

6.1.2 Single Computer HTML and Text Reports

Depending on the user selected options, the following reports may be available in both HTML and/or text based formats:

REPORT	DESCRIPTION
All Settings Report	The *<Computer>_SCC_5.10.2_All-Settings_<Content Name>.html* report contains the XCCDF results in a human readable format. The report is divided into five sections: Score, System Information, Stream Information, Results and Detailed Results. The **Scores** section contains the calculated scores for the target system. The **System Information** section contains information about the target system (CPE Information), such as the host name, IP addresses, operating system, processor, memory, manufacturer, model, serial number, BIOS version, and Ethernet Interfaces. The **Content Information** section contains information about the XCCDF benchmark, such as the XCCDF filename used, status (if officially accepted content along with the date it was officially accepted), content installation date ,the profile used, the testing start and end times, and the identity of the user who ran the benchmark. The **Results** section contains the individual rule results, comprised of the CCE reference and the check title. To view the "Detailed Results" for an individual item, just click on the text. The **Detailed Results** section contains in-depth information on each rule performed in the benchmark. This section varies slightly between SCAP and standalone OVAL/OCIL, but contains fields such as Title, Result, CCE Identities, CVE Identities, severity, weight, definitions, tests, collected items
All Settings Summary Report	Contains the same information as the "All Settings Report", except excludes the Detailed Results, which allows for easier printing.
Non-Compliance	The *<Computer>_SCC_5.10.2_Non-Compliance_<XCCDF Content*

Report	*Name>.html* report contains same results in the same format as the "All Settings Report", but only includes the Failed, Error, and Unknown checks.
Non-Compliance Summary Report	Contains the same information as the "Non-Compliance Report", except excludes the Detailed results, which allows for easier printing.

6.1.3 Understanding the Result Status Information

All of the reports show the number of checks performed, and the result for each. The result types are specified by the SCAP standards and are summarized below.

RESULT	EXPLANATION
Pass	The SCC was able to correctly interpret the check in the XML content, perform the check on the target system, and all check requirements were met. Example: Password Length Requirement 12 Characters, Target Computer: 12 Characters
Fail	The SCC was able to correctly interpret the check in the XML content, perform the check on the target system, and one or more of check requirements were not met. Example: Password Length Requirement 12 Characters, Target Computer: 8 Characters
Error	The SCC was able to correctly interpret the check in the XML content, however an error occurred while performing the check. This is typically due to a configuration of the target system, or insufficient permissions of the user running the software.
Unknown	The SCC was not able to interpret the check in the XML content. This could be due to a flaw in the XML content, or an incompatibility between the SCC and the XML content such as OVAL version.
Not Applicable	The SCC was able to interpret the check in the XML content, but it was not applicable to the target system.
Not Checked	The SCC was able to interpret the check in the XML content, however the XML content did not result in any evaluation to be performed. Also, if a probe is not supported, the check will show up as Not Checked.
Not Selected	The SCC was able to interpret the check in the XML content, however the XML content instructed the SCC not to perform this check.
Total	Numeric sum of Pass, Fail, Error, Unknown, Not Applicable, Not Checked, and Not Selected.

6.1.4 Understanding Color Coding in the HTML Reports

The HTML reports have color coding to assist in understanding what failed, and why it failed.

6.1.4.1 Color Coding in the 'Results' Section

COLOR	DESCRIPTION
Blue	The overall rule passed all of the required tests. Example: "Account Lockout Duration - (CCE-2928-0) - Pass
Red	The overall rule failed one or more of the required tests. Example: "Account Lockout Duration - (CCE-2928-0) - Fail

6.1.4.2 Color Coding in the 'Detailed Results' Section for Class = Compliance

Per OVAL specifications, for compliance checks, a test result of "True = Compliant", and "False = Not Compliant".

COLOR	DESCRIPTION
Blue	The individual test result was True, or the result was False but did not cause the overall test to fail.
Red	The individual test was False and contributed to the overall rule being marked as Fail.

6.1.4.3 Color Coding in the 'Detailed Results' Section for Class = Patch

COLOR	DESCRIPTION
Blue	SCC was able to verify that the patch was installed as required in the underlying tests. Result = Pass
Red	SCC was not able to confirm that the patch was installed as required, as one or more of the underlying tests failed. Result = Fail

6.1.4.4 Color Coding in the 'Detailed Results' Section for Class = Vulnerability

Per OVAL specifications, for Compliance checks, a test result of True = Vulnerable and False = Not Vulnerable.

COLOR	DESCRIPTION
Blue	The individual test result was False (meaning not vulnerable), or the result was Pass (vulnerable) but did not cause the overall test to fail.
Red	The individual test was True (Vulnerable) and contributed to the overall rule being marked as Fail.

7.2 Navigating the Results Directory

The User Data Directory, which contains both Application Logs and Scan Sessions, is configurable, see "Editing Options" for details. By default the data is stored a subdirectory called "SCC" in the user's home directory, but can be configured to store results to the installation directory, or any custom directory.

On UNIX or Linux computers, the 'custom' data directory must exist on a local filesystem. SCC does not support storing results and logs to a remote NFS filesystem.

The default directory structure is as follows, but is user configurable.

ApplicationLogs
>This directory contains SCC logs (screen, debug, error) related primarily to the SCC application itself, startup, forms, etc. and not specifically related to performing SCAP content scanning.

Sessions

>**<Date/Time Scan Session>**
>>The Date/Time directory is created each time the Analyze Computer button is pressed, or a scan is completed via CSCC. This helps organize all scan related data for a single session.

>>**SCC_Summary_Viewer_<Date/Time Scan Session>.html**
>>>The Summary Viewer report provides hyperlinks to all of the HTML, Text and XML based reports created from a single scan session.

>>**Logs**
>>>This directory contains log files (screen, debug, error) specifically related to a scan session.

>>**Results**
>>>**<SCAP/OVAL/OCIL>**
>>>>\<Computer\>_SCC_5.10.2_All-Settings_\<Content\>.html
>>>>\<Computer\>_SCC_5.10.2_Non-Compliance_\<XCCDF Content\>.html

>>>>**XML**
>>>>>XML files (see table below)
>>>>**Checklists**
>>>>>DISA Checklist (CKL) reports from any NIWC Enhanced SCAP Benchmark that contains Manual Questions

7.2.1 Contents of the XML Directory

The XML folder contains XML output generated by SCC. This output can be XCCDF results, OVAL results and OVAL variables files. Refer to the "Editing Options" for enabling or disabling saving the XCCDF and OVAL XML files after each review.

These files are not designed to be human readable, but are intended to be read into another SCAP, XCCDF or OVAL compatible software product to provide consolidated results.

Note: All filenames included in the table below are SCC's default result filenames

XML FILE	DESCRIPTION
NIST ARF 1.1	The `<Computer>_SCC_5.10.2_<DateTime>_ARF_<XCCDF Content Name>.xml` file contains the ARF results in a machine readable format. This high level summary of the review including the asset information from each system and the pass/fail status of each check performed. This results file is required for SCAP 1.2 compliance.
XCCDF Results	The `<Computer>_SCC_5.10.2_<DateTime>_XCCDF-Results_<XCCDF Content Name>.xml` file contains the XCCDF results in a machine readable format. This is a high level summary of the review including the asset information from each system and the pass/fail status of each check performed.
OCIL Results	The `<Computer>_SCC_5.10.2_<DateTime>_ocil-res-Results_<XCCDF Content Name>.xml` file contains the detailed OCIL in a machine readable format. This is a detailed report pass/fail results from each OCIL patch check performed during a review. This file only exists if SCAP content contains an OCIL questionnaire.
OVAL CPE Results	The `<Computer>_SCC_5.10.2_<DateTime>_CPE-Results_<XCCDF Content Name>.xml` file contains the CPE results in a machine readable format. This contains platform information about the target system including the operating system, network interfaces and processor type.
OVAL Patch Results	The `<Computer>_SCC_5.10.2_<DateTime>_OVAL-Patch-Results_<XCCDF Content Name>.xml` file contains the detailed OVAL patch results in a machine readable format. This is a detailed report of pass/fail results from each OVAL patch check performed during a review. This file only exists if the SCAP content contained an OVAL patch file.
OVAL Results	The `<Computer>_SCC_5.10.2_<DateTime>_OVAL-Results_<XCCDF Content Name>.xml` file contains the detailed OVAL results in a machine readable format. This is a detailed report of pass/fail results from each OVAL definition performed during a review.
OVAL Variables	The `<Computer>_SCC_5.10.2_<DateTime>_OVAL-Variables_<XCCDF Content Name>.xml` file contains a list of OVAL variables in a machine readable format.

7.3 Viewing Screen, Error or Debug Logs

Depending on the user selected preferences, the following log files may be present:

7.3.1 Application Logs

Application Logs are logs that are created when the application is started, and during application execution outside of any scan (when the analyze button is pressed). Application Logs are created in the Logs/ApplicationLogs directory (unless that directory option is disabled) and then they are saved in the root of the Logs directory. The ApplicationLogs directory is only created when logs exist, so may not be created depending on user preferences.

Some of the following logs might be present, depending if screen or debug logs are enabled, or if any application errors occurred.

REPORT	DESCRIPTION
Screen Log	*SCC_5.10.2_<DateTime>_Screen_Log.txt* This option saves the analysis log printed to the "Status" screen to a text file for viewing after the review. This file is not saved by default, but can be enabled in Options.
Error Log	*SCC_5.10.2_<DateTime>_Error_Log.txt* This report contains any errors that may have occurred while SCC is running, but not during a specific scan. This also contains any errors that may have occurred during command line usage. If this file exists, and the error log does not provide enough information to resolve the issue, please contact NIWC (see appendix G for technical support) and provide the error log for our analysis.
Debug Log	*SCC_5.10.2_<DateTime>_Debug_Log.txt* This option saves a large amount of additional information related to what occurred during a primary SCC operation, or when run via command line.. This option is disabled by default and should only be used when attempting to resolve errors in the application, as it will slow down the application and potentially use large amounts of disk space. Please refer to Appendix A.8 Debugging for additional information on SCC debug logs and their intended usage.

7.4.1 Scan Logs

Scan Logs are logs that are created when any SCAP/OVAL/OCIL content is used to scan a target computer. By default the logs are created in a date/timestamp 'session' directory within the Logs directory. Each time the Analyze button is pressed, a new scan log subdirectory is

created. This directory name matches the same date/time session directory created in the Results directory.

REPORT	DESCRIPTION
Scan Screen Log	*SCC_5.10.2_<DateTime>_Screen_Log.txt* This option saves the analysis log printed to the "Status" screen to a text file for viewing after the review. This file is not saved by default, but can be enabled in Options.
Scan Error Log	*SCC_5.10.2_<DateTime>_scan<number>_Error_Log.txt* This report contains any errors that may have occurred during a GUI based scan. The scan<number>, such as scan001 or, scan002 corresponds to each review that is started by clicking the Analyze button. Normally this file will not exist. If this file exists, and the error log does not provide enough information to resolve the issue, please contact NIWC (see appendix G for technical support) and provide the error log for our analysis.
Scan Debug Log	*SCC_5.10.2_<DateTime>_scan<number>_Debug_Log.txt* This report contains any debug that occurred during a scan. The scan<number> such as scan001, scan002 corresponds to each review that is started by clicking the Analyze button. This option saves a large amount of additional information related to what occurred during a review. This option is disabled by default and should only be used when attempting to resolve errors in the application, as it will slow down the application and potentially use large amounts of disk space. Please refer to Appendix A.8 Debugging for additional information on SCC debug logs and their intended usage.

APPENDIX A - FREQUENTLY ASKED QUESTIONS

A.1 Why can't I install a DISA STIG Manual XCCDF into SCC?

Below is a common question:

I tried to import a "Manual" STIG as a *.zip into the SCC and it gives me the following error:

```
"Unable to find OVAL document.*.zip Please ensure that all SCAP
streams include a valid OVAL file that is named '<stream_name>-
oval.xml"
```

I then tried to import a manual STIG as a *-xccdf.xml into the SCC and gives me the following error:

```
"Error installing file, *-xccdf.xml: SCC did not find a valid
SCAP 1.2 data-stream-collection"
```

Answer:

DISA STIG "Manual"'s are not SCAP content. They contain an XCCDF XML file, with a xslt transform, meant to be viewed with Internet Explorer in order to perform a manual assessment of the system. They do not contain any OVAL xml, which is required for automation.

To obtain SCAP content from DISA, download "Benchmarks" from
https://cyber.mil/stigs/scap/

A.2 How can I scan CENTOS Linux, Rocky Linux, Alma Linux, Debian Linux etc. with an existing SCAP benchmark?

SCAP content is designed to be applicable to a specific OS or application version, but SCC has a feature to ignore this.

GUI:

```
Options -> Show Options -> Scanning Options -> SCAP Options -> Run
all content regardless of applicability
```

CSCC

```
cscc --config -> 6. Configure Options -> Scanning Options -> 3.
[X] Run all content regardless of applicability
```

A.3 I just installed new/updated SCAP content from DISA, why am I no longer seeing Manual Questions?

SCAP content from DISA does not contain any manual questions. The SCC team is maintaining a repository of "Enhanced" content, which contains all of the automated rules from the DISA content, along with manual questions from the DISA STIG Manual. In order to include manual questions in SCAP content, only install content from NIWC's repository located at:

https://www.niwcatlantic.navy.mil/scap/scap-content-repository/

Our "Enhanced" repository should be updated shortly after DISA posts new/updated benchmarks to their repository at cyber.mil.

A.4 Can I scan Linux/Solaris/Mac from Windows?

Yes. The SSH based scanning allows for UNIX (linux/solaris/mac) scans to be performed from Windows. Refer to section 4.3.

A.5 Is SCC officially SCAP validated?

Yes.

SCC version 4.1.1 was officially SCAP validated on August 26, 2016 against the SCAP 1.2 standards.
SCC version 5.6 was officially SCAP validated on November 4, 2022, against the SCAP 1.3 standards.

SCC currently supports SCAP versions 1.0, 1.1, 1.2 and 1.3.

https://csrc.nist.gov/Projects/scap-validation-program/validated-products-and-modules/147-scc-scap-1-3-product-validation-record

https://csrc.nist.gov/projects/scap-validation-program/validated-products-and-modules/140-spawar-scap-1-2-product-validation-record

A.6 Who should I report SCAP content issues to?

For content which lists the Publisher as DISA, please contact DISA:: disa.stig_spt@mail.mil

For content which lists the Publisher as NIWC LANT, please contact our team:
 scc.fct@navy.mil

A.7 Why does NIWC's 'Enhanced' content have a different version from DISA SCAP content?

In order to allow end users to be able to install both DISA content and NIWC Enhanced content at the same time, the benchmark version of our enhanced content needs to be different from DISA SCAP content.   The Enhanced content will be based on the DISA STIG SCAP content version, but with an additional set of numbers for our Enhanced content release.

<DISA STIG SCAP Benchmark Version> + "." <NIWC Enhanced Content Version>, and the enhanced content is dropping the leading 00's for brevity.

Example:

```
DISA SCAP:
U_Adobe_Acrobat_Reader_DC_Continuous_V2R2_STIG_SCAP_1-2_Benchmark.xml
internally it's version 002.002
```

```
NIWC Enhanced SCAP:
U_Adobe_Acrobat_Reader_DC_Continuous_V2R2_STIG_SCAP_1-2_Benchmark-
enhancedV1.xml internally it's version 2.2.1
```

If there were updates to the STIG Manual, but no updates to the DISA SCAP Benchmark after 2.2.1 was released, we would regenerate the content with updated manual questions and then the Enhanced content would be version 2.2.2.

A.8 Does SCC provide any remediation functionality?

No. This software only analyzes the system, it does not modify any setting.

A.9 Where can I learn more about creating my own SCAP content?

http://csrc.nist.gov/publications/PubsSPs.html - (SP800-126 and SP 800-117)

http://ovalproject.github.io/ - OVAL

http://scap.nist.gov/specifications/xccdf/ - XCCDF documentation

A.10 Why is SCC default SCAP content and application updates URL's hosted on a .com?

The default content repository URL included with SCC is an XML file maintained on github by DISA. The URL is part of DISA's https://disa-stigs.github.io/ page, and updates are posted by an authorized DISA employee. It was decided to use DISA's github portal for the XML feed for two reasons.

1. To prevent any denial of service issues with their cyber.mil page, as we have thousands of end users, running SCC on millions of computers, and github has much more bandwidth, capability and reliability than cyber.mil.
2. Speed of updates. Any updated files posted to cyber.mil have to go through a lengthy approval process, and would delay content update availability by days or weeks.
3. Cyber.mil may be replaced with another website at some point, while github likely will remain a constant, and the XML file on github can then be updated to point to any cyber.mil replacement website.

Additionally, the XML file is just a pointer to cyber.mil, so if SCAP content or application updates are needed, they are downloaded directly from cyber.mil, but we assumed this would be much less frequent than end users checking for updates.

Below is an snip from the current XML feed located at:
 https://raw.githubusercontent.com/DISA-STIGS/DISA-STIGS.github.io/master/content-repository.xml

```
<content-id>U_Adobe_Acrobat_Reader_DC_Continuous_V2R2_STIG_SCAP_1-
2_Benchmark-enhanced.zip</content-id>
<location>https://www.niwcatlantic.navy.mil/wp-
content/uploads/2022/12/U_Adobe_Acrobat_Reader_DC_Continuous_V2R2_ST
IG_SCAP_1-2_Benchmark-enhanced.zip</location>
<checksum
style="SHA512">6a8f8593d41c16807d483f272de24b5c7940348ce7ebf677928f4
dadf887ac5247be8b996bdba74cf4a4b0ab32435e09b0e1aaa0d87820998ae5f15cf
8a41276</checksum>
```

```
        <benchmarks>
                <benchmark>
                        <benchmark-
id>xccdf_mil.disa.stig_benchmark_Adobe_Acrobat_Reader_DC_Continuous_
Track_STIG</benchmark-id>
                        <title>Adobe Acrobat Reader DC Continuous
Track STIG SCAP Benchmark - NIWC Enhanced with Manual
Questions</title>
                        <version>002.002</version>
                        <style>SCAP_1.2</style>
                        <status>accepted</status>
                        <status-date>2021-06-22</status-date>
                        <creator>DISA</creator>
                        <publisher>DISA</publisher>
                        <contributor>DISA</contributor>
                        <source>STIG.DOD.MIL</source>
                </benchmark>
        </benchmarks>
```

As you can see, the actual content will be downloaded directly from cyber.mil, with SHA512 checksum being performed to ensure it's what is expected. SCC's application update XML feed works in the same manner.

A.11 Can I create my own offline SCAP content repository for my isolated network?

Yes, although you will need to have your own web server that you can write files to that doesn't require authentication.

Option 1: To make an offline copy of NWC's content repository;

1. Copy the following file from DISA's github repository to your computer: https://raw.githubusercontent.com/DISA-STIGS/DISA-STIGS.github.io/master/niwc-content-repository.xml
2. Copy all of the SCAP Benchmark zip files from NIWC's content repository website: https://www.niwcatlantic.navy.mil/scap/scap-content-repository/
3. Copy all of the SCAP Benchmarks to your own web server
4. Edit the content repository XML file URLs to match the URL's to your zip files
   ```
   (ex:  update

   <location>https://www.niwcatlantic.navy.mil/wp-
   content/uploads/2022/12/U_Adobe_Acrobat_Reader_DC_Continuous_V2
   R2_STIG_SCAP_1-2_Benchmark-enhanced.zip</location>

   to be

   <location>https://your-
   webserver/yourDirectory/U_Adobe_Acrobat_Reader_DC_Continuous_V2
   R2_STIG_SCAP_1-2_Benchmark-enhanced.zip</location>
   ```
5. Copy the updated content repository to your server (ex: https://your-webserver/content-repository.xml)
6. Update SCC to use your webserver
   a. via GUI:
      SCC -> Options -> Update Options -> Right click on the existing URL, and click edit, then edit and save to https://your-webserver/content-repository.xml
   a. via CSCC Config

```
                        cscc --config -> 6.  Configure Options -> 7. Update
                        Options -> Delete Repository URL, then Add new Repository
                        URL
```

     a.   scripted via CLUI:

```
                        cscc --setOption contentRepository https://your-
                        webserver/content-repository.xml
```

Options 2: To make an offline copy of DISA's content repository, that SCC can use for updating:

1. Copy the following file from DISA's github repository to your computer:
   https://raw.githubusercontent.com/DISA-STIGS/DISA-STIGS.github.io/master/content-repository.xml
2. Copy all of the SCAP Benchmark zip files from DISA's Cyber.mil website:
   https://cyber.mil/stigs/scap/
3. Copy all of the SCAP Benchmarks to your own web server
4. Edit the content repository XML file URLs to match the URL's to your zip files
   ```
   (ex:  update
   ```
   ```
   <location>https://dl.dod.cyber.mil/wp-
   content/uploads/stigs/zip/U_Adobe_Acrobat_Reader_DC_Classic_V2R
   1_STIG_SCAP_1-2_Benchmark.zip</location>
   ```
   ```
   to be
   ```
   ```
   <location>https://your-
   webserver/yourDirectory/U_Adobe_Acrobat_Reader_DC_Classic_V2R1_
   STIG_SCAP_1-2_Benchmark.zip</location>
   ```
5. Copy the updated content repository to your server (ex: https://your-webserver/content-repository.xml)
6. Update SCC to use your webserver
       a.   via GUI:
     SCC -> Options -> Update Options -> Right click on the existing URL, and click edit, then edit and save to https://your-webserver/content-repository.xml
       a.   via CSCC Config
     ```
     cscc --config -> 6.  Configure Options -> 7. Update
     Options -> Delete Repository URL, then Add new Repository
     URL
     ```
       a.   scripted via CLUI:
     ```
     cscc --setOption contentRepository https://your-
     webserver/content-repository.xml
     ```

To create your own custom content repository xml file, not based on the existing DISA repository, we suggest using the DISA STIG content repository xml feed as a template. The following checksum 'styles' are supported, SHA3_256 is recommended, but not easily available via windows/linux command line.

- SHA3_256
- SHA256
- SHA512

The following may also work but are not recommended

- SHA1
- MD5

A.12 Can SCC run directly from a CD-ROM?

Yes

A.13 Can SCC be run as a non-Administrator or non-root user?

On Windows, SCC offers limited functionality for non-Administator users, including SSH based UNIX and Cisco scanning and alternate credentials Windows WMI remote scanning. Refer to section 8 for more information.

On Linux, Mac, and Solaris, root is required to run SCC.

APPENDIX B - KNOWN ISSUES

B.1 Potential out of memory crashes with very large OVAL XML content files

It is not recommended to install OVAL source content larger than 30 MB in size. When loading OVAL XML content, it's common for SCC to use 20-30 times the XML file size in RAM. This means that a 20 MB source OVAL XML file could use 400-600 MB of RAM to load and use. When memory usage goes above 1-2 GB, SCC stability issues may occur.

Source OVAL XML files larger than 10 MB are not include in any SCAP content currently available, but it is possible to download raw OVAL files, such as the entire CIS OVAL repository that could cause stability issues with SCC.

B.2 Unable to scan RHEL8 systems via SSH with OS application white listing enabled (SCC failed to launch)

Starting with SCC 5.5, we have added a new option, disabled by default, which can allow SCC to automatically whitelist itself and allow it to run remotely via SSH. See the SSH Remote Scanning Option to enable it, and for more information on how the temporary configuration change works.

B.3 Host Key Check Failed when scanning RHEL7/8 and Ubuntu systems via SSH when changing between SCC 5.4 and 5.4.2 or later

SCC's internal libssh2 module was updated for SCC 5.4.1, and this adds support for more modern/secure ssh host key exchanges. This causes the host key saved in SCC 5.4 to be different from SCC 5.4.2 on most modern Linux systems. There is an auto-negotiate that occurs, and the highest security method by both server and client is used. So for RHEL6 and Solaris 10, the keys will not change, but for anything more modern host keys will change.

To resolve this issue, using the Host Credential Manager, do a test connection on all hosts using 5.4.2 or later and accept the new host keys.

B.4 Account lockout issues when scanning Ubuntu remotely via SSH with correct credentials

Refer to the SSH Troubleshooting section for details.

B.5 Mounting of autofs file systems

SCC attempts by several methods, depending on the Operating System, to prevent entering remote automounted file systems, but it is not always possible to determine the automounts without actually mounting them. If SCC does mount a remote autofs file system, it should not read all of the directories, subdirectories and files, and eventually the autofs mounts should time out and disconnect.

If SCC is causing issues and you are able to determine a method before SCC scans to identify the remote autofs mounts on your system, please contact our help desk and we will research improving this capability in a future release.

B.5 SCC fails to find embedded shared libraries when installed and run from auto home directory.

When scc is installed in an 'auto home' directory (on solaris this is usually /home/<username>) and run using auto home path i.e /home/username . If it is required to install in auto home directory, then execution should be done with absolute path to application: /export/home/username/scc_5.3/cscc .
It is important to note that this (running from /home/username/...) may or may not cause scc to fail depending upon whether or not shared lib dependencies are installed on the system under test.

B.6 Issues with reviewing Solaris multiple zones concurrently

We do not currently support running the SCC application on multiple zones (global, non-global, or any combination there of) on the same system at the same time. There are known issues with doing this and we highly suggest that you run on them at separate times. In internal testing running concurrently on multiple zones often caused SCC to core dump.

APPENDIX C - TROUBLESHOOTING

C.1 Troubleshooting UNIX SSH Remote Scanning

C.1.1 SSH Authentication Troubleshooting

C.1.1.1 For Password Authentication: Verify sshd_config is configured with "PasswordAuthentication yes"

This setting is disabled by default on SUSE Enterprise Linux 12, and could be configured to "PasswordAuthentication no" on any system. Some systems may have it commented out "# PasswordAuthentication yes". We recommend having it explicitly set, as each OS could have different default value.

SCC will not be able to SSH to the system, and the error returned from the system will appear the same as a bad username/password. To make debugging more challenging, manually SSH'ing outside of SCC will likely work as expected. This setting appears to make the connection mandate an interactive session, breaking any automation.

C.1.1.2 For Private Key Authentication: Verify private key is using RSA

Putty generated keys are not support. The file should look like the following:

```
-----BEGIN RSA PRIVATE KEY-----
large text block that is your private key...
-----END RSA PRIVATE KEY----

or

-----BEGIN OPENSSH PRIVATE KEY-----
large text block that is your private key...
-----END OPENSSH PRIVATE KEY----
```

SCC 5.10.2 should log a specific error regarding this issue.

C.1.1.3 For direct root login: Verify sshd_config is configured with 'PermitRootLogin yes'

This method is not allowed in DISA STIG's so it's not a recommended method for SCC.

C.1.2 SSH Escalation Troubleshooting

C.1.2.1 SUDO: Verify that sudo is installed on Solaris 10/11

'sudo' is not installed by default, and will need to be installed if sudo scanning methods are enabled.

SCC 5.10.2 should log a specific error regarding this issue.

C.1.3 Verify target partitions exist and have sufficient freespace

SCC uses /tmp for pushing files to before moving them to their final directory (usually /opt/scc-remote), but /opt can be changed by the end user to any directory. SCC will create the 'scc-remote' subdirectory on each scan, and remove it when it's complete.

SCC requires at least 200 MB free in /tmp and 2048 MB in /opt/scc-remote

C.1.4 Known issues with remote RHEL targets and Application Whitelisting with fapolicy

Starting with SCC 5.5, we have added a new option, disabled by default, which can allow SCC to automatically whitelist itself and allow it to run remotely via SSH. See the SSH Remote Scanning Option to enable it, and for more information on how the temporary configuration change works.

C.1.5 Known issues with remote Ubuntu targets and pam_tally2 and account lockout (when using the correct password)

The STIG for Ubuntu 18 has the user add pam_tally2 to the /etc/pam.d/common-auth file, with the lockout being 3 wrong passwords. This affects SCC because of an oversight in the pam_tally2 functionality, where, upon a successful SSH login, an unsuccessful login attempt will be tallied. Remote scanning appears as several SSH scans at once, causing the user to be locked out immediately and preventing the scan. According to the man page for pam_tally2, the login attempt counter is incremented, then the password is checked, and afterwards pam_setcred should be called to reset the counter if successful. On a default install of Ubuntu 18, this pam_setcred is not installed, nor is it called in the etc/pam.d/common-auth file, meaning the attempt counter never gets reset. A fix for this issue is adding the line **account required pam_tally2.so** to the **/etc/pam.d/common-account** file before any other account statements.

The user is also advised to reset the tally counter on their account used to scan. **pam_tally2 --user USERNAME --rese**t where USERNAME is the account name.

The STIG is scheduled to be updated to resolve this issue in October 2021.

No SCC troubleshooting procedures exist for Solaris.

APPENDIX D – SCC AND SCAP

D.1 SCAP Validations & Capabilities

- SCAP Versions Supported
  - SCAP Version: 1.0
    - Validation Date: February 25, 2009
  - SCAP Version: 1.1
  - SCAP Version: 1.2
    - Validation Date: August 26, 2016
  - SCAP Version: 1.3
    - Validation Date: November 4, 2022
- SCAP Capabilities
  - Authenticated Configuration Scanner (ACS)
  - Common Vulnerability Enumeration (CVE)
  - Open Checklist Interactive Language (OCIL)

D.2 Standards Supported

STANDARD	VERSION SUPPORTED
SCAP	1.0, 1.1, 1.2, 1.3
OVAL	5.3 -> 5.11.2
OCIL	2.0
XCCDF	1.1.4 and 1.2
CPE	2.2, 2.3
CCE	5.0
CVE	
AI	1.1
ARF	1.1
TMSAD	1.0
Software Identification (SWID) Tags	2015

D.3 SCAP Implementation

SCAP (Security Content Automation Protocol) is a suite of standards used to determine the presence of vulnerabilities, patches and configuration issues on a target system. SCAP content consists of machine readable XML files that contain configuration data, checklist data and logic used to scan a system. The standards include CVE (Common Vulnerabilities and Exposures), CCE (Common Configuration Enumeration), CPE (Common Platform Enumeration), XCCDF (eXtensible Configuration Checklist Description Format), OVAL (Open Vulnerability and Assessment Language) and CVSS (Common Vulnerability Scoring System).

SCAP Compliance Checker processes SCAP content on a target system and produces HTML and text reports, XCCDF results and OVAL results. The HTML and text reports provide benchmark scores and information that a system administrator can use to make the target system more secure. The XCCDF results and OVAL results can be used by other tools in a variety of ways since they are generated using the industry standard XCCDF and OVAL results formats.

SCAP Compliance Checker reads in a SCAP stream which includes XML files written in the XCCDF, OVAL and CPE Dictionary schemas. SCAP Configuration Checker then generates XML results files using the XCCDF and OVAL results schemas. The HTML reports are generated by transforming the generated XCCDF and OVAL XML results files into human readable output. This output contains detailed scoring and results information, as well as CVE, CCE and CPE identifiers.

SCAP Compliance Checker is capable of validating SCAP streams against the industry standard XCCDF and OVAL schemas. All output generated by SCAP Configuration Checker can also be validated.

SCAP Compliance Checker 5.10.2 implements SCAP version 1.0, 1.1, 1.2 and 1.3.

D.3.1 How SCC Process SCAP 1.0/1.1 Data Streams

SCC follows the Use Case Requirements in NIST 800-126 which document the following:

COMPONENT	STREAM LOCATOR	REQUIRED/OPTIONAL
XCCDF Benchmark	xxxx-xccdf.xml	Required
OVAL Compliance	xxxx-oval.xml	Required
OVAL Patch	xxxx-patches.xml	Optional
CPE Dictionary	xxxx-cpe-dictionary.xml	Required
CPE Inventory	xxxx-cpe-oval.xml	Required

Where "xxxx" indicates the SCAP stream name, which must be consistent across all files in the SCAP Stream.

From 800-126: "The notation "xxxx" designates a locator prefix that SHALL be associated with a use case specific data source component stream.

The SCC order of operations with a SCAP stream is as follows, and the USGCB 2.0.0.0 Windows XP Stream is used as an example.   SCAP Stream Name = "USGCB-Windows-XP"

1. SCC verifies if the XCCDF Benchmark, OVAL Compliance, CPE Dictionary and the CPE Inventory exist for the specified SCAP stream.

USGCB-Windows-XP-xccdf.xml

USGCB-Windows-XP-oval.xml

USGCB-Windows-XP-cpe-dictionary.xml

USGCB-Windows-XP-cpe-oval.xml

2. If all required files are present, SCC then loads the XCCDF file to gather platform information.

USGCB-Windows-XP-xccdf.xml

3. Based on the Profile that was selected in the options form, the SCC then finds the matching profile, and then checks to ensure the profile is not an abstract profile. (<Profile> element doesn't have an "abstract" attribute or the attribute is set to "false".)

united_states_government_configuration_baseline_version_2.0.0.0

4. Next the CPE Dictionary is processed. The platform element from the XCCDF is used to determine what CPE items the target system is part of.

USGCB-Windows-XP-cpe-oval.xml

USGCB-Windows-XP-cpe-dictionary.xml

5. If the content is applicable to the target computer based on the CPE OVAL tests, the XCCDF content is then traversed and loads the OVAL file and/or the OVAL patches files (from filename) and definitions are processed. The definitions that get processed come from the XCCDF rules found during the XCCDF traversal.

USGCB-Windows-XP-oval.xml

USGCB-Windows-XP-patches.xml

6. XML results are created, based on user settings in the options form of the GUI or the --config from the command line.

<Computer>_SCC_5.10.2_<Date-Time>_OVAL-CPE-Results_USGCB-Windows-XP.xml

<Computer>_SCC_5.10.2_<Date-Time>_OVAL-Patch-Results_USGCB-Windows-XP.xml

<Computer>_SCC_5.10.2_<Date-Time>_OVAL-Results_USGCB-Windows-XP.xml

<Computer>_SCC_5.10.2_<Date-Time>_OVAL-Variables_USGCB-Windows-XP.xml

<Computer>_SCC_5.10.2_<Date-Time>_XCCDF-Results_USGCB-Windows-XP.xml

7. HTML and/or text based reports are generated based on end user options

D.3.2 How SCC Processes SCAP 1.2 or 1.3 Data Streams

SCAP 1.2 as defined in NIST 800-126 rev 2 introduces data-stream-collections, data-streams, and components which are used to combine SCAP 1.0/1.2 components into a single file. Each SCAP 1.2 stream must contain a single data-stream-collection which in turn must contain at least one data-stream and one component. A data-stream may contain dictionaries and checklists, but must contain at least one check.

Upon installation of a SCAP 1.2 stream, if the file contains multiple data-streams within the data-stream-collection SCC will create a new record in the SCAP Content options for each data-stream. The user is then able to select/de-select content based on the data-stream allowing the user to run one or more data-streams from the same data-stream-collection during any given analysis run.

The SCC order of operations with a SCAP 1.2 stream is as follows, and the USGCB 1.2.7.1 Internet Explorer 8 Stream is used as an example.   SCAP 1.2 Stream Name = "scap_gov.nist_datastream_USGCB-ie8-1.2.3.1.zip".

Note: *This is the data-stream name, not the data-stream-collection name*

1. SCC verifies if the XCCDF Benchmark, OVAL Compliance, OCIL Questionnaire, CPE Dictionary and the CPE Inventory components exist for the specified SCAP stream.

scap_gov.nist_comp_USGCB-ie8-xccdf.xml

scap_gov.nist_comp_USGCB-ie8-OCIL.xml

scap_gov.nist_comp_USGCB-ie8-oval.xml

scap_gov.nist_comp_USGCB-ie8-cpe-oval.xml

scap_gov.nist_comp_USGCB-ie8-cpe-dictionary.xml

2. If all required files are present, SCC then loads the XCCDF component to gather platform information.

scap_gov.nist_comp_USGCB-ie8-xccdf.xml

3. Based on the Profile that was selected in the options form, the SCC then finds the matching profile, and then checks to ensure the profile is not an abstract profile. (<Profile> element doesn't have an "abstract" attribute or the attribute is set to "false".)

xccdf_gov.nist_profile_united_states_government_configuration_baseline _version_1.2.3.1

4. If SCC detects an OCIL Component, the user is prompted to fill out the questionnaire or skip the questions and continue analysis.

scap_gov.nist_comp_USGCB-ie8-OCIL.xml

5. Next the CPE Dictionary component is processed. The platform element from the XCCDF is used to determine what CPE items the target system is part of.

scap_gov.nist_comp_USGCB-ie8-cpe-oval.xml

scap_gov.nist_comp_USGCB-ie8-cpe-dictionary.xml

6. If the content is applicable to the target computer based on the CPE OVAL tests, the XCCDF content is then traversed and loads the OVAL file and/or the OVAL patches files (from filename) and definitions are processed. The definitions that get processed come from the XCCDF rules found during the XCCDF traversal.

```
scap_gov.nist_comp_USGCB-ie8-oval.xml
```

```
scap_gov.nist_comp_USGCB-ie8-patches.xml
```

7. XML results are created, based on user settings in the options form of the GUI or the --config from the command line. SCAP 1.2 specifies the use of the NIST Asset Reporting Format (ARF) 1.1 for results generation. SCC generates an ARF results file, but we also chose to include the old reports for our current user population.

```
<Computer>_SCC_5.10.2_<Date-Time>_ARF_ scap_gov.nist_datastream_USGCB-
ie8-1.2.3.1.zip.xml
```

```
<Computer>_SCC_5.10.2_<Date-Time>_OCIL-Results_
scap_gov.nist_datastream_USGCB-ie8-1.2.3.1.zip.xml
```

```
<Computer>_SCC_5.10.2_<Date-Time>_OVAL-CPE-Results_
scap_gov.nist_datastream_USGCB-ie8-1.2.3.1.zip.xml
```

```
<Computer>_SCC_5.10.2_<Date-Time>_OVAL-Patch-Results_
scap_gov.nist_datastream_USGCB-ie8-1.2.3.1.zip.xml
```

```
<Computer>_SCC_5.10.2_<Date-Time>_OVAL-Results_
scap_gov.nist_datastream_USGCB-ie8-1.2.3.1.zip.xml
```

```
<Computer>_SCC_5.10.2_<Date-Time>_OVAL-Variables_
scap_gov.nist_datastream_USGCB-ie8-1.2.3.1.zip.xml
```

```
<Computer>_SCC_5.10.2_<Date-Time>_XCCDF-Results_
scap_gov.nist_datastream_USGCB-ie8-1.2.3.1.zip.xml
```

8. HTML and/or text based reports are generated based on end user options.

D.3.3 CVE Implementation

The CVE (Common Vulnerabilities and Exposures) standard links unique identifiers with known security vulnerabilities and/or exposures. CVE identifiers are typically found in the OVAL patch definition content of a SCAP data stream. An OVAL patch definition may contain a reference element that associates the definition with a CVE identifier. Links to various websites containing more information about the vulnerability and/or exposure may also be provided in the reference element.

When the SCAP Compliance Checker processes a SCAP data stream against a target system, any CVE identifiers associated with entities in the stream will be found and provided in the results HTML and text files. It is important to distinguish that SCC does not contain any static CVE database and only imports CVE information from the content stream.

In the SCAP Compliance Checker results HTML files, CVE identifiers can typically be found in the OVAL results HTML file for the patch content. Detailed information on each definition processed can be found in the Definitions section of the HTML file. For each definition, there is a "CVE" row that displays any CVE identifiers that are associated with the definition.

It is important to note that when SCC finds a CVE identifier, it automatically creates a link in the CVE row to the NVD (National Vulnerability Database) webpage for that particular CVE identifier. This allows the user to determine the impact that a particular CVE has based on CVSS impact metrics. This also allows the user to prioritize different vulnerabilities found by comparing vulnerability scores with each other.

CVE Specification - https://cve.mitre.org

D.3.4 CCE Implementation

The CCE (Common Configuration Enumeration) standard links unique identifiers with known system configuration issues.

When the SCAP Compliance Checker processes a SCAP data stream against a target system, any CCE identifiers associated with Rules and/or definitions in the stream will be found and provided in the results HTML files. If no CCE identifiers are found within the SCAP data stream, SCC will not provide CCE information in the result files.

CCE identifiers are typically found in the OVAL definition content and the XCCDF content of a SCAP data stream. An OVAL definition may contain a reference element that associates the definition with a CCE identifier. A link to the CCE website containing more information about the system configuration issue is also provided in the reference element. An XCCDF Rule may contain an ident element that associates the Rule with a CCE identifier.

In the SCAP Compliance Checker results HTML files, CCE identifiers can typically be found in the HTML reports. For OVAL results HTML files, detailed information on each definition processed can be found in the Definitions section of the HTML file. For each definition, there is an "Identities" row that displays any CCE identifiers that are associated with the definition, in addition to the CCE identifier.

It is important to note that CCE identifiers in the Detailed Results section of the reports, provides a link to the CCE website to allow the user to gather additional information (e.g. attack vectory, dates, etc.) regarding the configuration issue.

SCAP Compliance Checker 5.10.2 implements CCE version 5.0, however the Detailed Results section of the reports displays the CCE version 4.0 as well.

CCE 5.0 Specification - http://cce.mitre.org/

D.3.5 CPE Implementation

The CPE (Common Platform Enumeration) standard is a structured naming scheme for hardware, operating systems and applications. It allows different tools to specify names for IT platforms in a consistent way. The XCCDF file included in a typical SCAP data stream contains one or more platform elements. The platform element contains a CPE identifier that associates an XCCDF Benchmark, Rule or Group with a target platform. If the target system is not an instance of the CPE identifier specified in a platform element, then the XCCDF Benchmark, Rule, or Group associated with that platform element is not applicable to the target system and will not be processed.

In order to determine if the target system is an instance of a CPE identifier, SCAP Compliance Checker processes the CPE dictionary and the CPE OVAL content in the SCAP data stream. The CPE dictionary contains one or more CPE identifiers, each associated with an OVAL definition that resides in the CPE OVAL content. If SCAP Compliance Checker processes the OVAL definition and the definition returns a result of "true", then the target system is said to be

an instance of the associated CPE identifier. A list of CPE identifiers that the target system is an instance of is compiled in this fashion from the CPE dictionary, then used when processing the XCCDF file. If the CPE identifier specified by a platform element in the XCCDF file is not in the compiled CPE instance list, then the Benchmark, Rule or Group associated with that CPE identifier is not applicable to the target system and will not be processed. Rules that are not applicable to the target system will have a result of "not applicable".

SCAP Compliance Checker 5.10.2 implements CPE version 2.2, 2.3.

CPE 2.3 Specification - https://csrc.nist.gov/publications/detail/nistir/7695/final

D.3.6 CVSS Implementation

The CVSS (Common Vulnerability Scoring System) standard is a system used to assign scores to vulnerabilities. By assigning a score to a vulnerability, one can determine its relative severity when compared to other vulnerabilities.

In the SCAP Compliance Checker the CVE identifiers can typically be found in the security patches section of the HTML reports. For each security patch check, there is a "References" row that displays any CVE identifiers that are associated with the definition. Each CVE identifier will have a link to the NVD database webpage for that CVE. Each link can then be used to obtain the CVSS information from the National Vulnerability Database (NVD) site, including the NIST-calculated CVSS score, the full CVSS vector, and the CVSS calculator.

CVSS 2.0 Specification - www.first.org/cvss

D.3.7 ARF 1.1 Implementation

The ARF (Asset Reporting Format) is a data model to express the transport format of information about assets and the relationships between assets and reports. The standardized data model facilitates the reporting, correlating, and fusing of asset information. SCC automatically generates the results of all SCAP 1.2 data streams into the ARF 1.1 format. The file will be included in the same folder as the other XML result files.

ARF 1.1 Specification - http://csrc.nist.gov/publications/PubsNISTIRs.html#NIST-IR-7694

D.3.8 AI Implementation

The Asset Identification (AI) 1.1 specification provides a standardized model for representing and identifying assets. The specification provides the necessary constructs to uniquely identify and correlate assets based on known identifiers and/or information about the assets. SCC identifies all assets utilizing the AI 1.1 specification in the ARF 1.1. result files.

AI 1.1 Specification - http://csrc.nist.gov/publications/PubsNISTIRs.html#NIST-IR-7693

D.3.9 TMSAD Implementation

The Trusted Model for Security Automation Data (TMSAD) is a common trusted model that can be applied to specification within the security automation domain (e..g SCAP). The TMSAD is composed of recommendations on how to use existing specifications to represent signatures, hashes, key information, and identify information in the context of an XML document and permits users to establish integrity, authentication, and traceability for security automation data.

SCC implements the TMSAD by verifying digitally signed SCAP 1.2 data streams. The XML digital signature (XMLDSig) implementation is based on requirements from the TMSAD, which includes requirements from W3C (http://www.w3.org/TR/xmldsig-core), and the NIST SP800-126 (http://csrc.nist.gov/publications/nistpubs/800-126-rev2/SP800-126r2.pdf).

Supported algorithms include:

- Digests: SHA1, SHA256, SHA384, SHA512

- Encryption: DSA_SHA1, RSA_SHA1, RSA_SHA256, ECDSA_SHA256

- ECDSA Named Curves: prime256v1, secp256k1, secp384r1, secp521r1

- Transforms: C14N, C14N11, EC14N (with and without comments), enveloped signature transform

- Canonicalization: C14N, C14N11, EC14N (with and without comments)

Note: The current implementation only supports reference that point to elements within the same document (enveloped signatures)

TMSAD 1.0 Specification - http://csrc.nist.gov/publications/PubsNISTIRs.html#NIST-IR-7802

D.3.10 XCCDF Implementation

XCCDF (Extensible Configuration Checklist Description Format) is a language used for writing security checklists and benchmarks. SCAP Compliance Checker loads XCCDF content from a SCAP stream and determines if the Rules specified by the XCCDF content are satisfied by a target system.

SCAP Compliance Checker validates XCCDF content, imports it and allows the user to select a profile from the content. Rules are automatically selected and unselected based on the profile the user selects.

The SCAP stream's CPE dictionary and its associated OVAL definitions are then processed to determine which XCCDF Rules are applicable to the target system. Rules that are found to be inapplicable to the target system based on CPE identifiers are automatically unselected.

SCAP Compliance Checker then traverses the XCCDF content, processing all selected XCCDF Rules against a target system. Scores are calculated using all of the current XCCDF scoring models including the default, flat, flat unweighted and absolute models. Additionally two custom scoring methods are calculated, the spawar-original and spawar-adjusted.

A benchmark results XML document is generated using the XCCDF Results schema. This results file is then transformed into an HTML report, along with more in depth reports generated from the SCAP stream's OVAL content. The benchmark results XML document can be imported into other tools since it uses the industry standard XCCDF Results schema.

SCAP Compliance 5.10.2 implements XCCDF version 1.1.4 and 1.2.

XCCDF 1.1.4 - https://csrc.nist.gov/publications/detail/nistir/7275/rev-3/final
XCCDF 1.2 - https://csrc.nist.gov/publications/detail/nistir/7275/rev-4/final

D.3.11 OVAL Implementation

OVAL (Open Vulnerability and Assessment Language) is a language used to standardize the transfer of security content among different tools. SCAP Compliance Checker loads OVAL

content in conjunction with an XCCDF checklist and processes the OVAL definition content against a target system.

SCAP Compliance Checker is able to process all four of OVAL's schemas: the Definitions schema, the System Characteristics schema, the Results schema and the Variables schema.

The Definitions schema is used to define definitions that test a machine's state. This schema is used in SCAP streams to specify patch, vulnerability and configuration content. SCAP Compliance Checker imports OVAL Definitions files and processes the OVAL definitions against a target system.

The System Characteristics schema is used to store data collected from a system. SCAP Compliance Checker uses Object data from OVAL Definitions content and generates System Characteristics data that is later used for testing purposes. This data is stored in an XML file using the OVAL System Characteristics schema.

The Results schema takes State data from OVAL Definitions content along with System Characteristics data and produces Definition and Test results. These results are stored in an XML file that follows the OVAL Results schema. SCAP Compliance Checker then transforms this XML file and produces human readable HTML report documents.

The Variables schema is used to import external variable data into the OVAL engine during processing of an OVAL definition. SCAP Compliance Checker processes the XCCDF content of a SCAP stream and extracts any variables that need to be imported into the OVAL engine. It then creates an XML file using the OVAL Variables schema that contains these variables. The OVAL engine later uses this file during OVAL processing.

By using the industry standard OVAL schemas, SCAP Compliance Checker can share data with any tool that understands OVAL.

SCAP Compliance Checker 5.10.2 implements OVAL version 5.3 -> 5.11.2.

OVAL 5.11.1 Specification - https://github.com/OVAL-Community/OVAL

D.3.12 OCIL Implementation

The Open Checklist Interactive Language (OCIL) defines a framework for expressing a set of questions to be presented to a user and corresponding procedures to interpret responses to these questions. SCAP Compliance Checker loads OCIL content in conjunction with an XCCDF checklist and processes the OCIL questionnaires against a target system. SCAP Compliance Checker can also process OCIL outside of a SCAP 1.1 data stream.

SCAP Compliance Checker 5.10.2 implements OCIL version 2.0

OCIL 2.0 Specification - http://scap.nist.gov/specifications/ocil/#resource-2.0

D.3.12.1 OCIL CPE Implementation

SCAP validation requirement SCAP.V.1800.1 states:

"The vendor SHALL provide instructions on how the product indicates the applicability of the imported SCAP source data stream to a target platform. Instructions SHOULD also describe how the product indicates data streams are not applicable for a target platform. This requirement is testing the use of the OCIL questionnaire associated with a CPE name via the CPE dictionary and the platform id to determine applicability of the data stream."

SCC allows the OCIL Questionnaire to be answered prior to running the CPE applicability check so that the end user does not have to answer the same questions multiple times if multiple systems are being scanned. This allows SCC to create an OCIL Results file into a temporary directory for each system. After finishing the OCIL Questionnaire and continuing the analysis, if a CPE applicability check is included in the SCAP stream, only the OCIL questionnaires deemed applicable will be included in the final ARF results file.

D.3.13 SWID Tags Implementation

SCAP 1.3 validation requirements state:

"SCAP.V.2850.1: The vendor SHALL provide instructions on how the product identifies SWID tags using OVAL inventory class definitions that are part of an SCAP source data stream.."

   and

"SCAP.V.2860.1: The vendor SHALL provide instructions on how the product identifies SWID tags using OVAL inventory class definitions that are part of a standalone OVAL Definition file."

SCC has support for the OVAL independent XMLFileContent test, with which content authors can create SCAP/OVAL content to find and process SWID tag files and report them as OVAL inventory.

SWID 2015 specification: https://csrc.nist.gov/Projects/Software-Identification-SWID/resources#resource-2015

D.4 OVAL Probes Supported by SCC 5.10.2 for Solaris

The following OVAL probes are supported in the Solaris version of SCC. For probe support on other platforms, please refer to the platform specific documentation for each release of SCC.

- Apache
  - httpd
- Cisco IOS
  - global
  - interface
  - line
  - snmp
  - version
  - version55
- Independent
  - EnvironmentVariable
  - EnvironmentVariable58
  - Family
  - FileHash
  - FileHash58
  - LDAP
  - SQL
  - SQL57
  - SQLEXT (SCC specific OVAL test, was submitted to the OVAL Board for inclusion in OVAL 5.12, but hasn't been approved)
  - TextFileContent
  - TextFileContent54
  - Variable
  - XMLFileContent
- Solaris
  - Facet
  - Image
  - Isainfo
  - Ndd
  - Package
  - Package511
  - PackageAvoidList
  - PackageCheck
  - PackageFreezeList
  - PackagePublisher
  - Patch
  - Patch54
  - SMF
  - SMFProperty
  - Variant
  - VirtualizationInfo
- UNIX
  - File
  - fileextendedattribute
  - Inetd
  - Interface
  - Password

- Process
- Process58
- Routingtable
- Runlevel
- Shadow
- Symlink
- Sysctl
- Uname
- Xinetd

D.4.1 SQL Database Management System Support

SCC supports reviews against the following SQL database configurations:

DATABASE MANAGEMENT SYSTEM	WINDOWS 2003 AND LATER	SOLARIS	RED HAT ENTERPRISE LINUX	DEBIAN LINUX
Microsoft SQL Server 2000 and Later	Yes			
Oracle Database 10g and 11g, Enterprise Edition		Yes	Yes	Yes
Oracle Database 10g and 11g, Express Edition		Yes	Yes	Yes

Local review capability is available for supported Oracle Database installations while local and remote review capabilities are available for supported Microsoft SQL Server installations.

D.4.2 SCAP Content Author Note on SQL and SQL57 implementation in SCC

SCC can recognize several common representations of the SQL Server and Oracle Database versions it supports. Such representations include chronological (SQL Server: 2005, 2008, 2008 R2; Oracle DB: 10g, 11g), short numerical (SQL Server: 9.0, 10.0; Oracle DB: 10, 11), and long numerical (SQL Server: 9.00.x, 10.00.x, 10.05.x; Oracle DB: 10.1, 11.2.0.x). Declaring multiple versions in a pattern match operation (e.g. "2005|2008", "10g|11g", or ".*") will enable SCC to concurrently analyze instances from all matching and supported versions of SQL Server or Oracle Database installed on the target system.

SCC's handling of the "connection_string" element does not treat it as a literal connection string. Rather, it is treated as a form for specifying which instances and, if reviewing a SQL Server installation, databases on the target system should be inspected. Disregarding the quotation marks, it has one required field, "server=<instance>" where <instance> is a literal instance name or a regular expression, and one optional field, "database=<database>" where <database> is a literal database name or a regular expression. When both fields are declared, they are separated by a semicolon (;). When reviewing a SQL Server installation, declaring the "server" field as "server=MSSQLServer" will enable SCC to submit database queries against the default instance. Omitting the "database" field for a SQL Server review will cause all queries to be submitted against the default database of the specified instance(s). When reviewing an Oracle Database installation, any database declaration in the "connection_string" entity will be ignored since it would not be applicable to the Oracle Database review process. Leveraging the pattern match operation of the "connection_string" element allows SCC to analyze multiple instances and multiple matching databases, where applicable, on each instance with a single SQL or SQL57 OVAL probe.

Due to SCC's dependency upon the Oracle SQL*Plus utility for conducting Oracle Database reviews, any SQL queries specified by Oracle Database specific OVAL probes are limited to a length of 257 characters.

APPENDIX E - REFERENCES & DEFINITIONS

E.1 References

DISA STIG SCAP Benchmarks
https://cyber.mil/stigs/scap/

NIWC SCAP Compliance Checker
https://www.niwcatlantic.navy.mil/scap/

NIST SCAP Specifications
http://nvd.nist.gov/scap.cfm

E.2 Definitions

ACRONYM	DEFINITION
ARF	The Asset Reporting Format (ARF) is a data model to express the transport format of information about assets and the relationships between assets and reports.
CCE	Common Configuration Enumeration CCE™ provides unique identifiers to system configuration issues in order to facilitate fast and accurate correlation of configuration data across multiple information sources and tools. For example, CCE Identifiers can be used to associate checks in configuration assessment tools with statements in configuration best-practice documents and security guides, are the main identifiers used for the settings in the U.S. Federal Desktop Core Configuration (FDCC) data file downloads, and are a key component for enabling security content automation. [1]
CIS	The Center for Internet Security. Current managers of the open source project which maintains OVAL. [6]
CPE	Common Platform Enumeration CPE™ is a standardized method of describing and identifying classes of applications, operating systems, and hardware devices present among an enterprise's computing assets. CPE can be used as a source of information for enforcing and verifying IT management policies relating to these assets, such as vulnerability, configuration, and remediation policies. IT management tools can collect information about installed products, identify products using their CPE names, and use this standardized information to help make fully or partially automated decisions regarding the assets.[1]
CVE	Common Vulnerability Enumeration CVE® International in scope and free for public use, CVE is a dictionary of publicly known information security vulnerabilities and exposures. CVE's common identifiers enable data exchange between security products and provide a baseline index point for evaluating coverage of tools and services.[1]
DISA	Defense Information Systems Agency The Defense Information Systems Agency (DISA) is a United States Department of Defense agency that provides information technology (IT) and communications support to the President, Vice President, Secretary of Defense, the military Services, and the Combatant Commands.[2] With respect to SCC and SCAP, DISA creates and maintains SCAP content for the DISA STIGS.
MITRE	MITRE is a not-for-profit corporation, chartered to work solely in the public interest. MITRE operates multiple Federally Funded Research and Development Centers (FFRDCs).[1] With regards to SCAP, MITRE develops and maintains several standards such as CPE, CCE and CVE (and formerly OVAL).
NIST	National Institute of Standards and Technology

	NIST is a United States Government agency responsible for many government standards, including SCAP.
OCIL	Open Checklist Interactive Language

The Open Checklist Interactive Language (OCIL) defines a framework for expressing a set of questions to be presented to a user and corresponding procedures to interpret responses to these questions. Although the OCIL specification was developed for use with IT security checklists, the uses of OCIL are by no means confined to IT security. Other possible use cases include research surveys, academic course exams, and instructional walkthroughs.[3] |
| OVAL | Open Vulnerability and Assessment Language

Open Vulnerability and Assessment Language (OVAL®) is an international, information security, community standard to promote open and publicly available security content, and to standardize the transfer of this information across the entire spectrum of security tools and services. OVAL includes a language used to encode system details, and an assortment of content repositories held throughout the community. The language standardizes the three main steps of the assessment process: representing configuration information of systems for testing; analyzing the system for the presence of the specified machine state (vulnerability, configuration, patch state, etc.); and reporting the results of this assessment. The repositories are collections of publicly available and open content that utilize the language.[1] |
| SCAP | Security Content Automation Protocol

SCAP (pronounced S-CAP) consists of a suite of specifications for standardizing the format and nomenclature by which security software communicates information about
software flaws and security configurations. [3]

NIST is responsible for developing standards and guidelines, including minimum requirements, for providing adequate information security for all agency operations and assets;
but such standards and guidelines shall not apply to national security systems.[3] |
| SCC | SCAP Compliance Checker

SCAP Validated Authenticated Configuration Scanner developed by NIWC Atlantic. |
| NIWC (formerly SPAWAR) | Naval Information Warfare Center

NWIC Atlantic is a Department of the Navy organization. We meet our nation's demands for uninterrupted vigilance, fail-safe cybersecurity, adaptive response and engineering excellence by delivering secure, integrated and innovative solutions to many naval, joint and national agencies. [4] |
| STIG | Security Technical Implementation Guides

The Security Technical Implementation Guides (STIGs) and the NSA Guides are the configuration standards for DOD IA and IA-enabled devices/systems. Since 1998, DISA Field Security Operations (FSO) has played a critical role enhancing the security posture of DoD's security systems by providing the Security Technical Implementation Guides (STIGs). The STIGs contain technical guidance to "lock down" information systems/software that might otherwise be vulnerable to a |

	malicious computer attack. [5]
SWID	Software Identification (SWID) Tags 2015 revision, a format for representing software identifiers and associated metadata8 [SWID]; Version: ISO/IEC 19770-2:2015 published in October 2015
USGCB	United States Government Configuration Baseline The purpose of the United States Government Configuration Baseline (USGCB) initiative is to create security configuration baselines for Information Technology products widely deployed across the federal agencies. The USGCB baseline evolved from the Federal Desktop Core Configuration mandate. The USGCB is a Federal government-wide initiative that provides guidance to agencies on what should be done to improve and maintain an effective configuration settings focusing primarily on security. [3]
XCCDF	The Extensible Configuration Checklist Description Format XCCDF is a specification language for writing security checklists, benchmarks, and related kinds of documents. An XCCDF document represents a structured collection of security configuration rules for some set of target systems. The specification is designed to support information interchange, document generation, organizational and situational tailoring, automated compliance testing, and compliance scoring. The specification also defines a data model and format for storing results of benchmark compliance testing. The intent of XCCDF is to provide a uniform foundation for expression of security checklists, benchmarks, and other configuration guidance, and thereby foster more widespread application of good security practices.
XML	Extensible Markup Language (XML) is a markup language that defines a set of rules for encoding documents in a format that is both human-readable and machine-readable. [2]

[1] - http://www.mitre.org
[2] - http://www.wikipedia.org
[3] - http://www.nist.gov
[4] - http://www.public.navy.mil
[5] - https://cyber.mil/stigs/
[6] - http://cisecurity.org

APPENDIX F - LICENSES

F.1 End User License Agreement

IN NO EVENT SHALL THE UNITED STATES NAVY (OR GOVERNMENT) OR ANY EMPLOYEES THEREOF BE LIABLE TO ANY PARTY FOR DIRECT, INDIRECT,SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, INCLUDING LOST PROFITS, ARISING OUT OF THE USE OF THIS SOFTWARE AND/ OR ITS DOCUMENTATION, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE, NOR SHALL THE UNITED STATES NAVY (OR GOVERNMENT) OR ANY EMPLOYEES THEREOF ASSUME ANY LEGAL LIABILITY OR RESPONSIBILITY FOR THE ACCURACY,COMPLETENESS, OR USEFULNESS OF THIS SOFTWARE AND/OR ITS DOCUMENTATION.

THE UNITED STATES NAVY (OR GOVERNMENT) SPECIFICALLY DISCLAIMS ANY WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE SOFTWARE AND ACCOMPANYING DOCUMENTATION, IF ANY, PROVIDED HEREUNDER IS PROVIDED "AS IS". THE UNITED STATES NAVY (OR GOVERNMENT) HAS NO OBLIGATION HEREUNDER TO PROVIDE MAINTENANCE, SUPPORT, UPDATES, ENHANCEMENTS, OR MODIFICATIONS. ANY REPRODUCTION OF THIS WORK MUST INCLUDED THE ABOVE NOTICES AND THE FOLLOWING NOTICE: "PORTIONS OF THIS SOFTWARE ARE OFFICIAL WORKS OF THE U.S. GOVERNMENT. THE U.S. GOVERNMENT MAY PUBLISH OR REPRODUCE THIS SOFTWARE, OR ALLOW OTHERS TO DO SO, FOR ANY PURPOSE WHATSOEVER."

FOR MORE INFORMATION CONTACT:
OFFICE OF INTELLECTUAL PROPERTY
NAVAL INFORMATION WARFARE CENTER PACIFIC
SAN DIEGO, CA 92152

APPENDIX G - TECHNICAL SUPPORT & FEEDBACK

Technical support is available for government users and contractors to the federal government.

G.1 Technical Support

- o   For assistance with the SCC application (installation, usage, errors, crashes) please email: scc.fct@navy.mil

G.2 Tutorials

There are a series tutorials for SCC which can be viewed at:
 https://www.niwcatlantic.navy.mil/scap/videos/

G.3 Software Releases

The latest official release information can be obtained from our website:
https://www.niwcatlantic.navy.mil/scap/

To be notified via email with updates on SCC, release notifications, customer support surveys, please email: scc.fct@navy.mil

G.3.1 Download Location

DISA maintains the authoritative download of SCC, and starting with SCC 5.4, no longer requires a CAC to obtain: https://public.cyber.mil/stigs/scap/

G.4 Provide Feedback on SCC

We ask for your feedback with an annual survey, but you can submit feedback anytime at the website below.

https://usnavy.gov1.qualtrics.com/jfe/form/SV_4ZpXv8JkUIDs4lw

APPENDIX H - CREDITS AND FUNDING

H.1 Credits and Funding

The development of SCC has been funded by several different agencies over the years:

- o   2008 - 2010   Internal Revenue Service (IRS)
- o   2010 - 2012   National Security Agency (NSA)
- o   2013 - 2022   Defense Information Systems Agency (DISA).
- o   2022 - 2024   A collaboration of two different groups of end users

H.2 SCC Funding for FY25 and Beyond

SCC is no longer funded by DISA (or any other individual agency). From FY23 to present, we have been graciously funded by two small groups of end users. Ideally, we would like to have 3 or 4 groups to help increase stability and decrease the financial burden for the contributing groups.

We are looking to find additional agencies/teams to share the costs of our labor (6 government GS-13 developers) along with materials and maintenance for the SCC development/test lab. Becoming a funding sponsor allows your group to influence the future of SCC and ensure it works correctly in your environment.

Please contact our team for more information.

SCC Email	scc.fct@navy.mil
SCC Website	https://www.niwcatlantic.navy.mil/scap/