OpenText™ Fortify Extension for Visual Studio

User Guide

Version 26.4

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User Guide

Software Version: 26.4.0

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1. Change log

The following table lists changes made to this document. Revisions to this document are published between software releases only if the changes made affect product functionality.

Software Release / Document Version	Changes
26.4.0	Added: Two new BIRT report templates:: • Cyber Resiliency Act 2024 • CWE Top 25 2025
26.2.0	Updated: Release date and version
25.2.0	• Added an option to specify the client path when you analyze your code with ScanCentral SAST. (see Configuring ScanCentral SAST options)
24.4.0	Updated: Release date and version

24.2.0	Added:
	• Remediating on :
	  ○ Auditing Multiple Issues
	  ○ Suppressing Issues
	Updated:
	• Installing from the Visual Studio Marketplace (see Installing)
	• Ability to perform analysis with using a standalone ScanCentral SAST client (see Requirements for Analyzing Source Code, About Scanning with , Configuring Options, and Scanning Projects or Solutions with)
	• Added New Issue by Category grouping attribute (see Grouping Issues)

23.1.0	Updated: • Changes were made throughout this guideHelp for the introduction of a separate installer • Added descriptions of proxy information for updating security content (see Configuring Security Content Updates) • Added the ability to override the priority value if enabled on and support for custom tags that require comments (see Auditing)

22.2.0	Updated: • Removed the ability to save issue reports based on BIRT in Microsoft Excel format (see Generating Issue Reports) • Added the Engine Priority grouping attribute, which is available for reviewing issues in (see Grouping Issues). • Added the `engine priority` search modifier, which is available for searching issues in (see Search Modifiers). • The now displays the application version name and includes the ability to refresh the analysis results with (see Viewing and Selecting Issues and Auditing).

2. Introduction

This guide describes how to use the to scan and analyze your project source code to uncover security vulnerabilities (issues), which you can then evaluate and remediate.

This section contains the following topics:

- Product name changes
- Fortify Extension for Visual Studio
- OpenText Application Security Content
- Installing Fortify Extension for Visual Studio
- Related documents

2.1. Product name changes

OpenText is in the process of changing the following product names.

Previous name	New name
OpenText Static Application Security Testing (OpenText SAST)	OpenText™ Fortify SAST
Fortify Software Security Center	OpenText™ Application Security
Fortify WebInspect	OpenText™ Dynamic Application Security Testing (OpenText Fortify DAST)
OpenText Core Application Security	OpenText™ Fortify on Demand
OpenText Core Software Composition Analysis (OpenText Core SCA)	OpenText™ Fortify Software Composition Analysis (OpenText Fortify SCA)
OpenText Application Security Aviator	OpenText™ Fortify Remediation Aviator
Fortify Applications and Tools	

The product names have changed on product splash pages, mastheads, login pages, and other places where the product is identified. The name changes are intended to clarify product functionality and to better align the Fortify Software products with . In some cases, such as on the documentation title page, the old name might temporarily be included in parenthesis. You can expect to see more changes in future product releases.

2.2. Fortify Extension for Visual Studio

The works with the Visual Studio integrated development environment (IDE). The extension integrates into the Visual Studio IDE as a software extension.

Software security analysis typically consists of the following phases:

- Analysis—Scan a codebase for vulnerabilities
- Auditing—Review the analysis results to eliminate false positives and prioritize remediation efforts
- Remediation—Fix and eliminate security vulnerabilities in your code

The uses Opentext™ and to locate security vulnerabilities in your solutions and projects (includes support for the following languages: C/C++, C#, Visual Basic (VB.NET), and ASP.NET). The are displayed in Visual Studio and include a list of issues uncovered, descriptions of the vulnerability type each issue represents, and suggestions on how to fix them.

Your organization can also use the with Opentext™ to manage applications and assign specific issues to developers. You can connect with to review the reported vulnerabilities and implement appropriate solutions from Visual Studio.

2.3. OpenText Application Security Content

uses a knowledge base of rules to enforce secure coding standards applicable to the codebase for static analysis. consists of and external metadata:

- describe general secure coding idioms for popular languages and public APIs
- External metadata includes mappings from the Fortify vulnerability categories to alternative categories (such as CWE, OWASP Top 10, and PCI)

provides the ability to write custom rules that add to the functionality of and the . For example, you might need to enforce proprietary security guidelines or analyze a project that uses third-party libraries or other pre-compiled binaries that are not already covered by the . You can also customize the external metadata to map Fortify issues to different taxonomies,

such as internal application security standards or additional compliance obligations. For instructions on how to create your own custom rules or custom external metadata, see the .

If you are using collaborative auditing with , make sure that any custom rules or external metadata changes are also made in .

Typically, you obtain the current when you install . For information about updating , see Updating Security Content.

2.4. Installing Fortify Extension for Visual Studio

You install the either by selecting the extension as a component when you install or from the Visual Studio Marketplace.

To install the with the installer, see the . During the installation, make sure that you select the extension that corresponds to the Visual Studio version installed on your system.

Installing from the Visual Studio Marketplace

To install the from the marketplace:

1. In Visual Studio, access the dialog box to manage extensions.
2. Search the Visual Studio Marketplace for `Fortify Extension for Visual Studio`.
3. Download and install the for your version of Visual Studio.



Note

To install this extension as an administrator and allow all users to use the extension, download the VSIX file from the marketplace and then install it using VSIXInstaller with the `/admin` option from the Command Prompt.



Important

You must also have the installed and configured in . If it is not yet configured, you are prompted to configure the installation directory when you start Visual Studio. You can also configure the installation directory from the extension menu in **Options** on the **Apps and Tools Configuration** page.

2.5. Related documents

ADD this topic to the end of your Chapter 1 in the TOC. This topic uses the Product_Conditions tag set to include the "All Products" section and the section of content for your specific product. You do not need to customize this topic unless you need to add a Technical Note or Technology Preview for your product. For example, to produce the WebInspect User Guide, the WebInspect writer does not currently need to make any changes. However, if the writer needed to add a Technology Preview, he would add it to the table and tag it with the WebInspect Product_Conditions tag. For more information about how to use this topic, see the article on OneNote at MadCap Flare > Templates and SFFS > Related Documents Topic.

This topic describes documents that provide information about products.

All products

The following documents provide general information for all products. Unless otherwise noted, these documents are available on the Product Documentation website for each product.

Document / file name	Description
appsec-docs-n-<*version*>.pdf	This paper provides information about how to access product documentation. **Note** This document is included only with the product download.
appsec-sr-<*version*>.pdf	This document provides the details about the environments and products supported for this version of .
What's New in <version> appsec-wn-<*version*>.pdf	This document describes the new features in products.
Release Notes appsec-rn-<*version*>.pdf	This document provides an overview of the changes made to for this release and important information not included elsewhere in the product documentation.

The following document provides information about . This document is available on the Product Documentation website at https://www.microfocus.com/documentation/fortify-software-security-center.

Document / file name	Description
sc-sast-ugd-<*version*>.pdf	This document provides information about how to install, configure, and use to streamline the static code analysis process. It is written for anyone who intends to install, configure, or use to offload the resource-intensive translation and scanning phases of their process.

The following document provides information about . This document is available on the Product Documentation website at https://www.microfocus.com/documentation/fortify-software-security-center.

Document / file name	Description
ssc-ugd-<*version*>.pdf	This document provides users with detailed information about how to deploy and use . It provides all the information you need to deploy, configure, and use . It is intended for use by system and instance administrators, database administrators (DBAs), enterprise security leads, development team managers, and developers. provides security team leads with a high-level overview of the history and status of a project.

The following documents provide information about . Unless otherwise noted, these documents are available on the Product Documentation website at https://www.microfocus.com/documentation/fortify-static-code.

Document / file name	Description
sast-ugd-<*version*>.pdf	This document describes how to install and use to scan code on many of the major programming platforms. It is intended for people responsible for security audits and secure coding.
sast-cr-ugd-<*version*>.zip	This document provides the information that you need to create custom rules for . This guide includes examples that apply rule-writing concepts to real-world security issues. **Note** This document is included only with the product download.
lim-ugd-<*version*>.pdf	This document describes how to install, configure, and use the Fortify License and Infrastructure Manager (LIM), which is available for installation on a local Windows server and as a container image on the Docker platform.

The following documents provide information about . These documents are available on the Product Documentation website at https://www.microfocus.com/documentation/fortify-static-code-analyzer-and-tools.

Document / file name	Description
sast-tgd-<*version*>.pdf	This document describes how to install application security tools. It provides an overview of the applications and command-line tools that enable you to scan your code with , review analysis results, work with analysis results files, and more.
awb-ugd-<*version*>.pdf	This document describes how to use to scan software projects and audit analysis results. This guide also includes how to integrate with bug trackers, produce reports, and perform collaborative auditing.
ep-udg-<*version*>.pdf	This document provides information about how to install and use the to analyze and audit your code.
iap-udg-<*version*>.pdf	This document describes how to install and use the to analyze your code and optionally upload the results to .
vse-udg-<*version*>.pdf	This document provides information about how to install and use the to analyze, audit, and remediate your code to resolve security-related issues in solutions and projects.

3. Using the Fortify Extension for Visual Studio

Use the to perform scans, review and audit analysis results, and remediate issues in Visual Studio.

This section contains the following topics:

- About analyzing the source code
- Working with Application Security
- About scanning locally
- About scanning with ScanCentral SAST
- Viewing analysis results
- Auditing analysis results
- Using issue templates
- Configuring custom tags for auditing
- Creating a filter set
- Managing folders
- Generating analysis results reports
- Working with audit projects
- Integrating with a bug tracker application
- Troubleshooting

3.1. About analyzing the source code

You analyze the source code from Visual Studio at the solution or project level. A security analysis with consists of the following main phases:

- Translate all .NET files and other existing supported files, such as T-SQL, into intermediate files
- Scan the intermediate files to complete the security analysis

There are two ways to analyze your source code:

- Use a locally installed to perform the entire analysis (translation and scan phases). For information about how to configure and run the analysis locally, see About Scanning Locally.
  After the scan is complete, displays the in Visual Studio.
- Use Opentext™ to perform the entire analysis (translation and scan phases) or only the scan phase. For information about how to configure and run the analysis using , see About Scanning with .

  Note

  If you use to perform only the scan phase, then the performs the translation phase using a locally installed .

  After the scan is complete, do one of the following to view the :
  - Configure the options to upload the analysis results to a server. You can then open the from (see Remediating Results from).
  - Use the provided job token in the client command-line to retrieve the (FPR) file from the Controller (see the for instructions), and then open it in Visual Studio (see Opening Audit Projects).

3.1.1. Requirements for analyzing source code

Make sure you meet the following requirements, which depend on how you analyze your code and if you will upload your analysis results to .

To scan your code from Visual Studio, you must have either:

- A locally installed and licensed installed with
  For installation instructions, see the .
- A local client and a properly configured installation
  You can install client, as a component with either the or the installation or from a ZIP archive.

To upload the to , you must have the following:

- A URL
- If your server uses an SSL connection from an internal certificate authority or a self-signed certificate, you must import the Fortify Software Security Center certificate into the local Windows certificate store.
- A user account on the server that has permission to access application versions
  To log into , you can use a user name and password, an authentication token, or a single sign-on (SSO) method as configured by a administrator.

3.2. Working with Application Security

You need to configure a connection to to perform any of the following tasks:

- Upload your to
- Audit applications collaboratively using
- Update your from

The following sections describe how to configure a connection to the server, the different login methods and how to synchronize your work on audit projects with .

This section contains the following topics:

- Configuring a connection to Application Security
- Logging in to Application Security
- Synchronizing with Application Security

3.2.1. Configuring a connection to Application Security

Before you can upload to or access the audit results in , you need to configure your connection to .

If your server uses an SSL connection from an internal certificate authority or a self-signed certificate, you must import the certificate into the local Windows certificate store.

To configure a connection to :

1. From the Fortify extension menu, select **Options**.
2. In the left pane, select **Server Configuration**.
3. Under **Software Security Center**, specify the **Server URL** for Fortify Software Security Center.

   Tip
   Click **Test Connection** to confirm that the URL is valid, and you can successfully connect to the Fortify Software Security Center server.

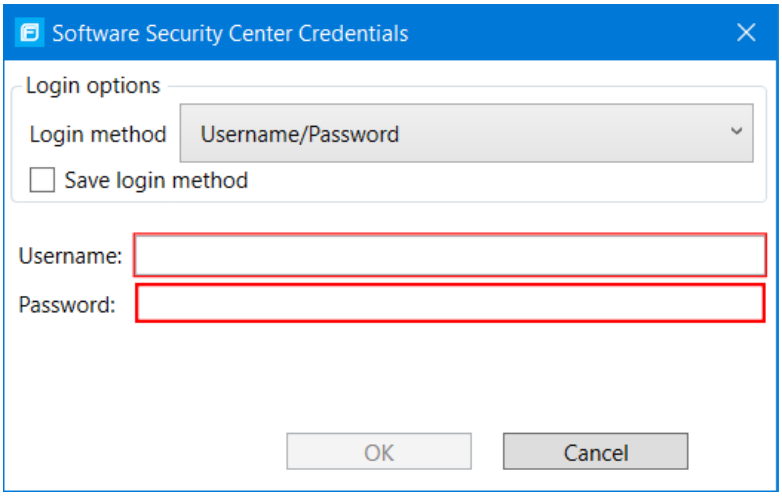
4. Click **OK**.

3.2.2. Logging in to Application Security

The first time you perform an operation that requires a connection to such as uploading an audit project or opening a collaborative application, you are prompted to log in. Before you can log in, you must have already configured the URL as described in Configuring a Connection to .

To log in to :

1. From the **Login method** list, select the login method set up for you in .



2. To save your login information, select the **Save login method** check box.
   The saves your login information for all future use of this extension until you install a new .
3. Depending on the login method you selected, do one of the following:

Login Method	Procedure
Username/Password	Type your user name and password.
Authentication Token	Specify the decoded value of a authentication token of type ToolsConnectToken. **Note** For instructions on how to create an authentication token from , see the
X.509 SSO	must be configured to use X.509 Certification-based SSO. **Note** Your certificate must be in the current user certificate store and in the **Personal** store. 1. Click the **Browse for Certificate** button . 2. Select the certificate for the sign-on, and then click **OK**.
Kerberos	<<deprecated in SSC 24.4 and will be removed in 25.2 Remove now?>> must be configured to use SPNEGO-based Kerberos authentication. **Note** Support for Kerberos SSO is limited to Windows systems.

4. Click **OK** to connect to .

3.2.3. Synchronizing with Application Security

The supports the ability to synchronize the local version of your project with the corresponding application version on the server. With synchronization to the server enabled, each time you load, merge, scan, or save your project locally on your system, the extension automatically uploads your changes to the version of your project on the server. This automatic synchronization prevents work loss during a power outage and enables you to work locally and synchronize your work when you connect later.

You can customize which action synchronizes your local version project with the server. For instance, you can customize so that synchronization occurs only when you merge or scan a project.

If synchronization is enabled, then when you perform a scan, partial scan, save, or merge on your project, a dialog box prompts you to specify whether you want to auto-synchronize your project with the server.

To change whether synchronization occurs automatically with the server:

1. From the Fortify extension menu, select **Options**.
2. In the left pane, select **Project Configuration**.
3. Select the **Synchronization Options** tab.
4. Specify the scope of the configuration by doing one of the following:
    - To configure the settings for the projects in the open solution only, select the **Enable Project Specific Settings** check box.
    - To change the default audit configuration for all projects scanned from this Visual Studio instance, click **Configure Defaults**.
5. Either clear the **Auto Synchronize all Projects with Server Applications** check box to turn off automatic synchronization or select it to enable automatic synchronization.
6. If automatic synchronization is enabled, you can customize the actions that trigger synchronization with the server by selecting the actions to exclude.
7. Click **OK**.

3.3. About scanning locally

This section describes how to perform a scan of your source code on the local system. You must provide the with the location of a locally installed . You are prompted for location of (`sourceanalyzer.exe`) the first time you analyze your solution (or project).

In the analysis configuration, you can specify the SQL type, how much memory to use for the scan, select the security content you want to use, whether you want to scan in quick scan mode, and other advanced scanning options.

strongly recommends that you periodically update the security content, which contains and external metadata. For information about how to update the security content, see Updating Security Content.

This section contains the following topics:

- Configuring security content updates
- About quick scan mode
- Configuring local scan options
- Configuring advanced local scan options
- Scanning projects or solutions locally

3.3.1. Configuring security content updates

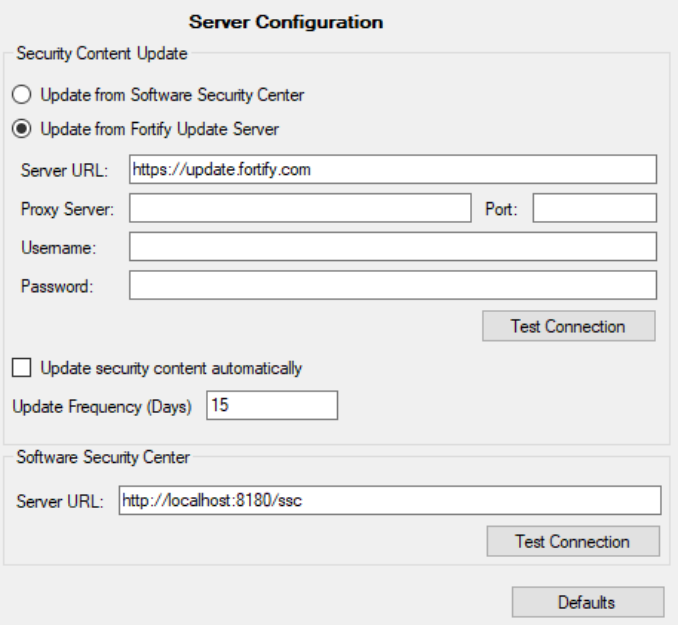
You can configure the server from which to update security content and whether to have the security content updated from a server automatically. To configure these settings, you must provide the location of a locally installed . You can specify the location of on the **Security Content Management** options page.

To update security content from your local system (if you do not have an internet connection or a server), see Updating Security Content.

To configure the server from where you will obtain security content:

1. From the Fortify extension menu, select **Options**.

The Options dialog box opens to the **Server Configuration** page.



2. To update security content from your server:
    1. Under **Security Content Update**, select the **Update from Software Security Center** check box.
    2. Under **Software Security Center**, specify the **Server URL** for (for example, `http://my.domain.com:8080/ssc`).
3. To update security content from the Fortify Rulepack update server:
    1. Under **Security Content Update**, select the **Update from Fortify Update Server** check box.
    2. In the **Server URL** box, type the URL for the Fortify Rulepack update server.
    3. If required, specify the proxy server, port number, and credentials for proxy authentication.

    Note
    When you specify the proxy settings, exclude the protocol from the proxy server (for example, `some.secureproxy.com`). You must specify a proxy port number.

4. To update security content from a server automatically and with a specific frequency:
    1. Under **Security Content Update**, select the **Update security content automatically** check box.
    2. In the **Update Frequency (Days)** box, specify how often to update .

Updating Security Content

Importing Custom Security Content

3.3.1.1. Updating security content

To enable the to scan with a locally installed , you must have up-to-date security content. You can update Fortify security content from a configured server or from your local system.

To update security content:

1. From the Fortify extension menu, select **Options**.
2. In the left pane, select **Security Content Management**.
3. To update security content, you must provide the location of a locally installed . If not already specified, do the following:
    1. Click **Browse** to the right of **Fortify Executable Path**.
    2. Navigate to the installation folder.
       The default installation folder on Windows is: `C:\Program Files\Fortify\Fortify_SCA_<version>`.
    3. Click **OK**.

4. To update Fortify security content from a server, do the following:
    1. (Optional) From the **Locale** list, select the language you want for the .
       By default, English is the selected language.
    2. Click **Update**.

   All existing security content is replaced with the from the server.
5. To update Fortify security content from your local system, under **Update Security Content from Local System**, do the following:
    1. Click **Fortify Security Content**.
    2. Navigate to a ZIP file, and then click **Open**.
6. Click **OK** to accept the update confirmation message.

All existing security content is replaced with the selected . Any existing custom security content is unchanged.

Importing Custom Security Content

Configuring Security Content Updates

3.3.1.2. Importing custom security content

You can import custom security content to use in your scans. stores custom rules in the `<sca_install_dir>\Core\config\customrules` folder.

> **Note**
>
> To import custom external metadata, you must place your external metadata file in the `<sca_install_dir>\Core\config\CustomExternalMetadata` folder.

To import custom rules:

1. From the Fortify extension menu, select **Options**.
2. In the left pane, select **Security Content Management**.
3. Under **Update Security Content from Local System**, click **Custom Security Content**.
   The Select Security Content dialog box opens.
4. Select the custom rules files to import (`*.xml` and `*.bin`), and then click **Open**.

The **Last Update** information box reflects the imported custom security content.

3.3.2. About quick scan mode

Quick scan mode provides a way to quickly scan your projects for critical- and high-priority issues. performs the scan faster by reducing the depth of the analysis and applying the Quick View filter set. Quick scan settings are configurable. For more details about the configuration of quick scan mode, see the .

Quick scans are a great way to get many applications through an assessment so that you can quickly find issues and begin remediation. The performance improvement you get depends on the complexity and size of the application. Although the scan is faster than a full scan, it does not provide as robust a result set. Other issues that a quick scan cannot detect might exist in your application. recommends that you run full scans whenever possible.

> **Note**
>
> By default, Fortify Software Security Center ignores uploaded scans performed in quick scan mode. However, you can configure your Fortify Software Security Center application version so that it processes uploaded audit projects scanned in quick scan mode. For more information, see the analysis results processing rules in the .

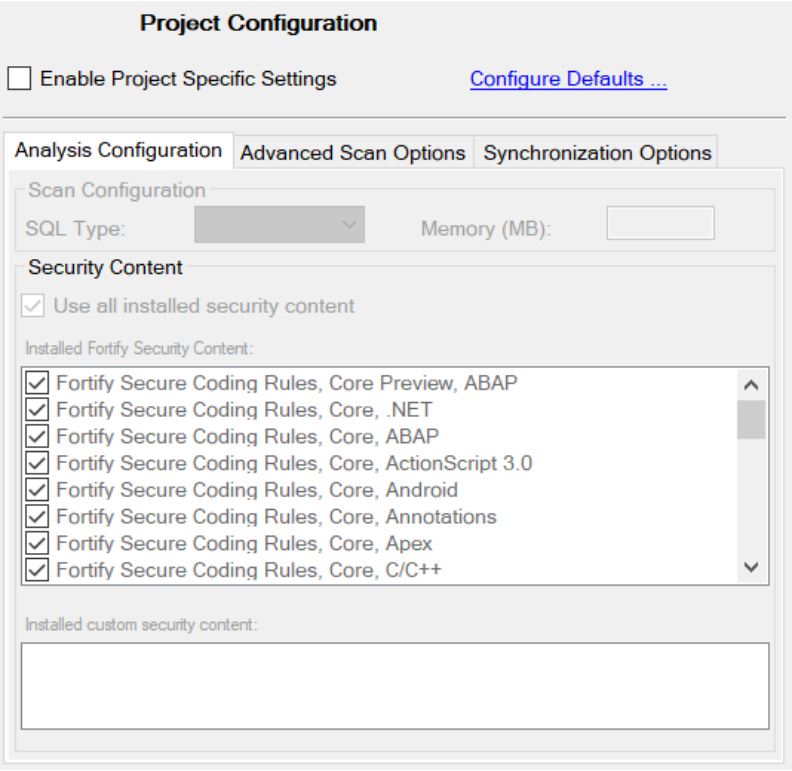
You can use quick scan mode for scans that use a locally installed . Audit quick just as you audit full . To perform a quick scan, see Configuring Advanced Scan Options.

3.3.3. Configuring local scan options

Use the analysis configuration to customize the security content, specify the SQL type, and specify the amount of memory uses during a local scan. To configure these settings, you must provide the location of a locally installed . You can specify the location of on the **Security Content Management** page.

To configure the analysis options:

1. From the Fortify extension menu, select **Options**.
2. In the left pane, select **Project Configuration**.
   The Project Configuration dialog box opens to show the **Analysis Configuration** tab.



3. Specify the scope of the configuration by doing one of the following:
   - To configure the settings for the projects in the open solution only, select the **Enable Project Specific Settings** check box.
   - To change the default scan configuration for all projects scanned from this Visual Studio instance, click **Configure Defaults**.
4. By default, treats SQL files as T-SQL. If your files use PL/SQL, from the **SQL Type** list, select **PL/SQL**.

> **Note**
> The **SQL Type** setting notifies about the SQL type that the project uses. only scans SQL code if it is included in the project.

5. To specify the amount of memory to use for the scan, type an integer in the **Memory (MB)** box.

> **Note**
> Do not allocate more than two thirds of the available physical memory.

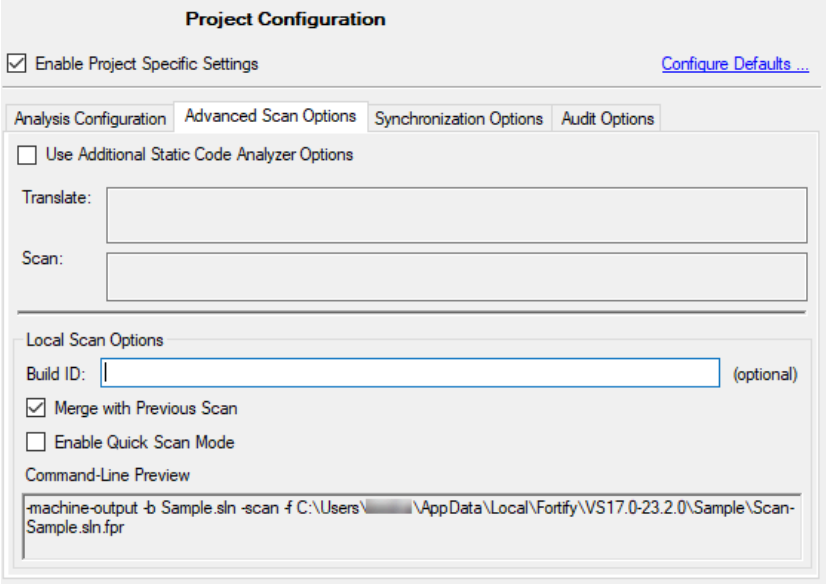
6. To customize the security content that you want to use, clear the **Use all installed security content** check box, and then select the and any specific custom security content that you want to use.
7. Click **OK**.

3.3.4. Configuring advanced local scan options

Use the advanced scan options to activate or deactivate quick scan mode and customize translation and scan command-line options. To configure these settings, you must provide the location of a locally installed . You can specify the location of on the **Security Content Management** page.

To change the advanced translation and scan options:

1. From the Fortify extension menu, select **Options**.
2. In the left pane, select **Project Configuration**.
3. Select the **Advanced Scan Options** tab.



4. Specify the scope of the advanced scan options by doing one of the following:
   - To configure the options for the projects in the open solution only, select **Enable Project Specific Settings**.
   - To change the default scan options for all projects scanned from this Visual Studio instance, click **Configure Defaults**.
5. Select the **Use Additional Static Code Analyzer Options** check box and type command-line options for either the translation or scan phase.

   Note
   These options are also included in a analysis.

   For detailed information about the available options and the proper syntax, see the .
   Under **Local Scan Options**, the **Command-Line Preview** box shows the complete scan command line.
6. (Optional) In the **Build ID** box, type a build ID for the scan.
   The default build ID is the name of the project or solution.
7. To deactivate merging the results of the next scan you run with results from the previous scan, clear the **Merge with Previous Scan** check box.
   By default, when you rescan a project from Visual Studio, the scan merges results from the previous scan with the results from the new scan. This enables you to see specifically which issues have been fixed and which issues were introduced since the earlier scan.
8. To perform a quick scan, select the **Enable Quick Scan Mode** check box.
   For information about quick scans, see About Quick Scan Mode.
9. Click **OK** to save the advanced scan options.

3.3.5. Scanning projects or solutions locally

Before you start the scan, save all files in the solution, and make sure that the active solution configuration is valid for the projects loaded in the solution. If the configuration is invalid, cannot successfully scan the solution and a message

indicating that the configuration is invalid is written to the log file.

Note

runs scans in a Java Virtual Machine (JVM).

To scan a solution or project on the local system, start the scan in one of the following ways:

- To scan at the solution level, select **Analyze Solution** from the Fortify extension menu.
- To scan at the project level, select a project, and then select **Analyze Project** from the Fortify extension menu.

After the scan has finished, the displays the results in the auditing interface.

You can now audit the in Visual Studio. For instructions, see Auditing Issues. If the codebase was audited before, results from the previous audit are automatically integrated with the new analysis results.

By default, the are stored as an FPR file in the folder that contains the solution or project. To save this file to a different location, select **Save Audit Project As** from the Fortify extension menu.

3.4. About scanning with ScanCentral SAST

This section describes the requirements to use to analyze your code and to upload the to .

With , you can either:

- Perform the entire analysis (translation and scan) with
- Perform the translation locally and then automatically upload the translated project to for the scan phase
  You must translate the project or solution locally if it uses a language that does not support for remote translation. For a list of languages supported with remote translation, see the document.
  Make sure that the version on the local system is the same as the version on the Fortify ScanCentral sensor. strongly recommends that you periodically update the security content. For information about how to update the security content locally, see Updating Security Content. Use the fortifyupdate utility to update security content on the sensor (see the).

To analyze your code with , you need the following:

- A local copy of a client.
  For information on how to obtain a client, see Requirements for Analyzing Source Code.
- A properly configured installation
  Make sure the configuration for your client is properly authorized with a client authentication token that matches the setting for the Controller. For more information, see the .
- To connect to , you need either:
  - A URL

    Important

    If the uses an SSL connection from an internal certificate authority or a self-signed certificate, you must add the certificate to the Java Keystore depending on the location of the client:

    - : `<sca_install_dir>\jre\lib\security/cacerts`
    - : `<tools_install_dir>\jre\lib\security/cacerts`
    - Standalone client: `<java_home_dir>\lib\security\cacerts`

  - A URL and an authentication token of type ToolsConnectToken
    To configure the URL, see Configuring a Connection to . For instructions about how to create an authentication token, see the .

To upload the to a server, you need the following:

- A URL or a that is integrated with a server

  > **Note**
  > recommends that the URL configured in the Server Configuration options matches the server integrated with the .

- A authentication token of type ToolsConnectToken
  For instructions on how to create an authentication token, see the .
- An application and application version that exists in
- Permission to access the application and application version to which you want to upload

Configuring Options

Scanning Projects or Solutions with

Advanced Scanning of Solutions with

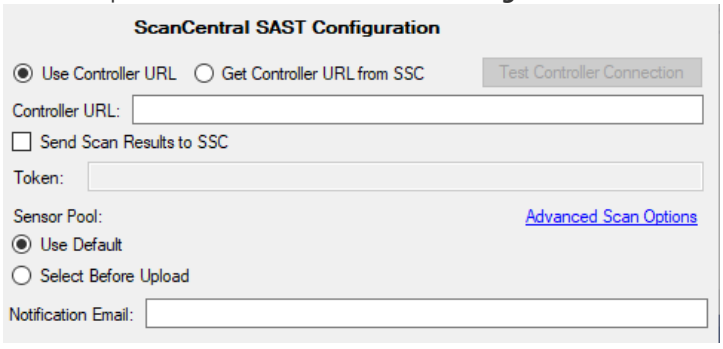
- Configuring ScanCentral SAST options
- Scanning projects or solutions with ScanCentral SAST
- Advanced scanning of solutions with ScanCentral SAST

3.4.1. Configuring ScanCentral SAST options

This section describes how to configure the default options to use when you submit a solution or project for analysis to . You can specify how to connect to the , the sensor pool selection, and whether to upload to . To change the analysis options and perform a scan for a specific solution, see Advanced Scanning of Projects or Solutions with .

To configure the options:

1. From the Fortify extension menu, select **Options**.
2. For local translation, you must provide the location of a locally installed OpenText SAST. If the **Fortify executable path** shows **<Unavailable>**, do the following:
   1. Click **Browse** to the right of **Fortify executable path**.
   2. Go to the OpenText SAST installation directory and select the executable file.
      Make sure to set the file type to **sourceanalyzer executable**.
   3. Click **OK**.
3. To configure the ScanCentral SAST client location:
   1. Click **Browse** to the right of **ScanCentral Client Path**
   2. Go to the ScanCentral SAST installation directory and do one of the following:
      - If you are using a standalone client installed with OpenText™ Application Security Tools, navigate to `<tools_install_dir> /bin/` and select `scancentral.bat` (on Windows) or `scancentral` (on non-Windows).
      - If the standalone client is installed in a different location, navigate to the installation directory and select `scancentral.bat` (on Windows) or `scancentral` (on non-Windows).
4. In the left pane, select **ScanCentral SAST Configuration**.



5. To specify how to connect to , do one of the following:
   - Select **Use Controller URL**, and then in the **Controller URL** box, type the URL for the .

     Example

     Example: https://<*controller_host*>:<*port*>/scancentral-ctrl

     Tip

     Click **Test Controller Connection** to confirm that the URL is valid, and the Controller is accessible.

   - Select **Get Controller URL from SSC**, and then in the **Token** box, paste the value for an authentication token of type ToolsConnectToken.
     Make sure that you have the URL that is associated with the provided in the **Server Configuration** options (see Configuring a Connection to).

     Tip

     Click **Test SSC Connection** to confirm that the URL and token is valid, and the server is accessible.

6. To upload the to , select the **Send Scan Results to SSC** check box.
   - In the **Token** box, paste the value for an authentication token of type ToolsConnectToken.

     Note

     If you connect to using a Controller URL, uploads analysis results to the server specifically integrated with the .

7. (Optional) To specify command-line options for the translation or scan phase:

   Important

   To specify command-line options, you must have a local installation of that includes an embedded client specified on the **Security Content Management** page.

   1. Click **Advanced Scan Options**.
      The **Project Configuration** page opens to the **Advanced Scan Options** tab.
   2. Select the **Use Additional Static Code Analyzer Options** check box and type command-line options for the translation or scan phase.
      For detailed information about the available options and the proper syntax, see the .
   3. In the left pane, select **ScanCentral SAST Configuration** to return to the option configuration.
8. Under **Sensor Pool**, specify whether to use the default sensor pool or be provided a list of sensor pools to choose from when you start a scan with .
9. (Optional) in the **Notification Email** box, type an email address to receive job status notifications.
10. Click **OK** to save your configuration.

3.4.2. Scanning projects or solutions with ScanCentral SAST

Before you can scan your project or solution with , you must configure the options as described in Configuring Options. In addition, make sure that the active solution configuration is valid for the projects loaded in the solution. If the configuration is invalid, cannot successfully scan the solution and writes a message to indicate that the configuration is invalid to the log file.

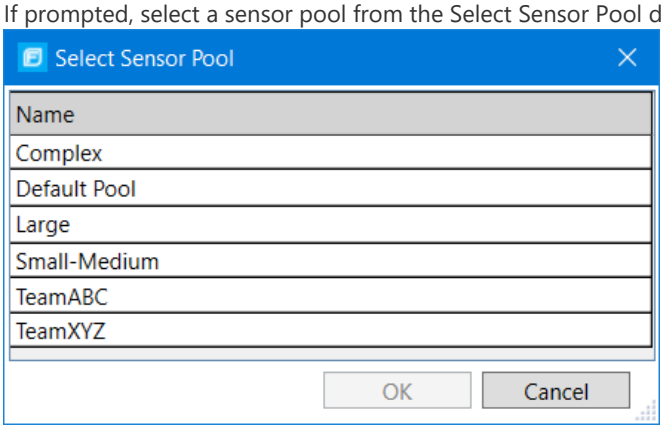
To scan at the solution level with custom options for this solution, see Advanced Scanning of Projects or Solutions with .

To scan a project or solution with :

1. Start the scan by doing one of the following:
    - To perform a remote translation and remote scan, select one of the following from the Fortify extension menu:
        - **ScanCentral > Remote > Upload Solution**
        - **ScanCentral > Remote > Upload Project**
    - To perform a local translation and remote scan, select one of the following from the Fortify extension menu:
        - **ScanCentral > Local > Upload Solution**
        - **ScanCentral > Local > Upload Project**

    Note
    If is not installed locally, then the **Local** menu command is not available.

2. If prompted, select the application version where you want to upload the , and then click **OK**.
3. If prompted, select a sensor pool from the Select Sensor Pool dialog box, and then click **OK**.



To view the , you can either:

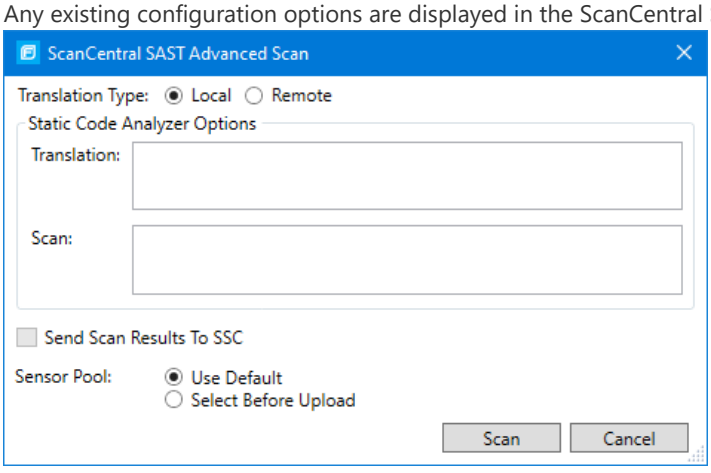
- Copy the provided job token and use it in the client command-line to retrieve the (FPR) file from the Controller (see the for instructions), and then open it in Visual Studio (see Opening Audit Projects).
- If you uploaded the to , you can check the status of the job (and view the results) on the server. After the scan is complete, you can open the in (see either Performing a Collaborative Audit or Remediating Results from).

3.4.3. Advanced scanning of solutions with ScanCentral SAST

You can customize the scan configuration for the current solution. You can adjust the translation type (local or remote), options for translation and scan, whether to upload to , and the sensor pool selection.

To run a customized scan using :

1. From the Fortify extension menu, select **ScanCentral > Advanced Scan**.
   Any existing configuration options are displayed in the ScanCentral SAST Advanced Scan dialog box.



2. Specify where to run the translation phase of the analysis by selecting one of the following:
    - **Local**—Run the translation phase on the local system and the scan phase with .
    - **Remote**—Run the entire analysis using .
3. To specify command-line options for the translation or scan phase, under **Static Code Analyzer Options**, type command-line options for the translation and scan phase.
   For detailed information about the available options and the proper syntax, see the .
4. To upload the to , select the **Send Scan Results to SSC** check box.

   Note
   If this check box is not available, you must first configure an authentication token in the **ScanCentral SAST Configuration** options (see Configuring Options).

5. Specify whether to use the default sensor pool or be prompted to select a sensor pool from a list.
6. Click **Scan**.
7. If prompted, select the application version where you want to upload the , and then click **OK**.
8. If prompted, select a sensor pool from the Select Sensor Pool dialog box, and then click **OK**.

To view the , you can either:

- Copy the provided job token and use it in the client command-line to retrieve the (FPR) file from the Controller (see the for instructions), and then open it in Visual Studio (see Opening Audit Projects).
- If you uploaded the to , you can check the status of the job (and view the results) on the server. After the scan is complete, you can open the in (see either Performing a Collaborative Audit or Remediating Results from).

3.5. Viewing analysis results

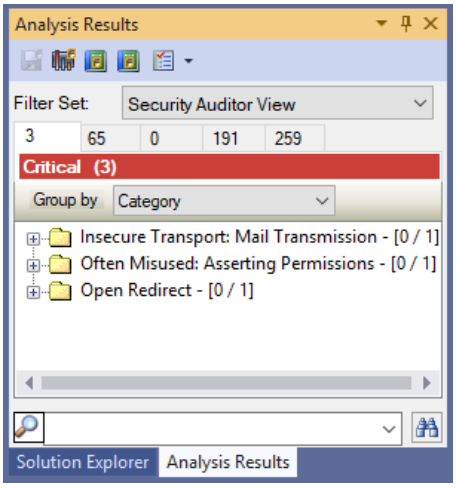
After a scan has been performed (or after you open an existing audit project), a summary of the is displayed in the Analysis Results window and in the Project Summary window. The Analysis Trace and Issue Auditing windows are open, but do not contain any information until you select an issue from the Analysis Results window.

Window	More Information
	Analysis Results Window
Project Summary	Viewing Project Summary Information
Analysis Trace	Analysis Trace Window
Issue Auditing	Issue Auditing Window

- Analysis Results window
- Viewing project summary information
- Analysis Trace window
- Issue Auditing window
- Code Editor
- Grouping issues
- Searching for issues
- Filtering issues with the Audit Guide

3.5.1. Analysis Results window

The Analysis Results window enables you to group, filter, and select the issues you want to audit.



This section contains the following topics:

- Filter sets
- Folders (Tabs)
- Group by list
- Customizing the issues display

3.5.1.1. Filter sets

The selected filter set controls which issues the Analysis Results window displays. The filter set determines the number and types of containers (folders) and how issues are displayed.

Each project can have unique sets because the filter sets are saved in an audit project results file.

The filter sets sort the issues into **Critical**, **High**, **Medium**, and **Low** folders, based on potential severity. All default filter sets have the same sorting mechanism.

The provides the following filter sets:

- **Quick View**—This is the default filter set for new projects. The Quick View filter set provides a view only of issues in the **Critical** folder (these have a potentially high impact and a high likelihood of occurring) and the **High** folder (these have a potentially high impact and a low likelihood of occurring). The Quick View filter set provides a useful first look at results that enables you to quickly address the most serious issues.
- **Security Auditor View**— This view shows all security issues detected. The Security Auditor View filter contains no visibility filters, and therefore all issues are shown.

If you open an FPR file that contains no custom `filtertemplate.xml` file or if you open an FVDL file or a `webinspect.xml` file, the audit project results open with the **Quick View** filter set selected.

For information about how to create your own filter sets, see Creating a Filter Set.

3.5.1.2. Folders (Tabs)

The tabs on the Analysis Results window are called *folders*. You can customize the settings for the color-coded folders. The number of folders, names, colors, and the issue list can vary between filter sets and audit projects. For information about how to create your own folders, see Creating a Folder.

Within each color-coded folder, issues are grouped into subfolders. At the end of each folder name, enclosed in brackets, is the number of audited issues and the total number of issues in the folder. For example, a folder with the name **Command Injection - [1 / 3]** indicates that one issue out of three categorized as Command Injection has been audited.

Each folder contains a list of issues. An issue is sorted into a folder if its attributes match the folder filter conditions. One folder in each filter set is the default folder, indicated by `(default)` in the folder name. If an issue does not match any of the folder filters, the issue is listed in the default folder.

Note

To show or hide suppressed, hidden, and removed issues, select a setting from the **Visibility** list. For more information, see Customizing the Issues Display.

3.5.1.3. Group by list

The **Group by** selection sorts the issue list into subfolders. The selected attribute is applied to all visible folders. Select **<none>** from the **Group by** list to display all issues in the folder without any grouping. The group by settings are for the application instance. You can apply the grouping attribute to any audit project opened with that instance of the application.

You can customize the existing groups by changing which attributes the groups are sorted by, adding or removing the attributes to create sub-groupings, and adding your own grouping.

Grouping Issues

3.5.1.4. Customizing the issues display

You can customize the issues displayed in the Analysis Results window. Determine which issues it displays by selecting an option from the **Visibility** list in the **Analysis Results** toolbar.

The visibility options are as follows:

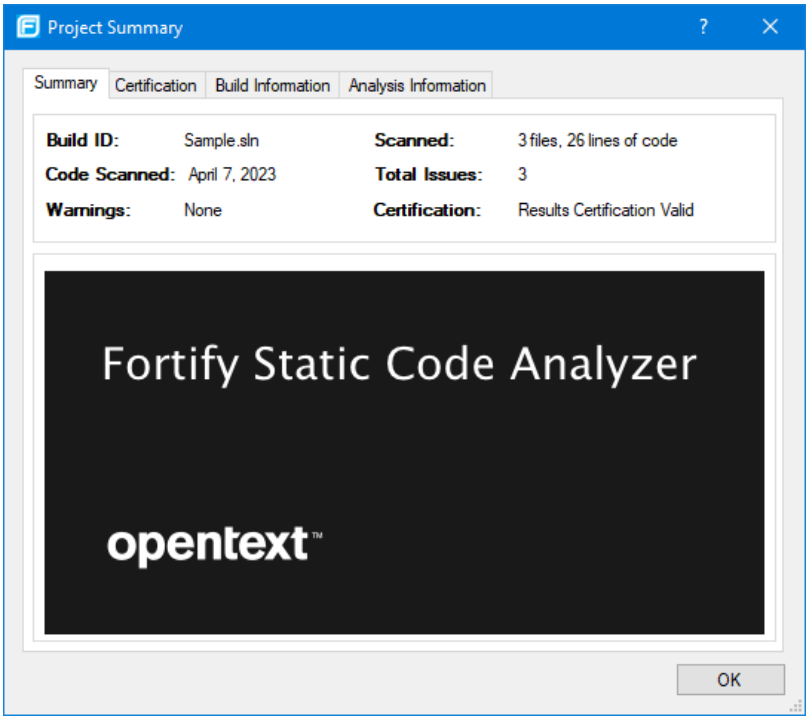
- **Show Removed Issues**—Shows all the issues you have removed or fixed. If you merged audit data into your current audit project, shows all the issues that were removed since the previous analysis.
- **Show Suppressed Issues**—Shows all the issues that you have suppressed.
- **Show Hidden Issues**—Shows all the issues that have been hidden.
- **Show My Issues**—Shows only your issues.
- **Use Short File Name**—References the issues in the **Issues** view by file name only, instead of by relative path. This option is enabled by default.

3.5.2. Viewing project summary information

The Project Summary window provides detailed information about the scan.

To open the Project Summary dialog box:

1. Open an audit project file (FPR, FVDL, or XML).
2. From the Fortify extension menu, select **Project Summary**.

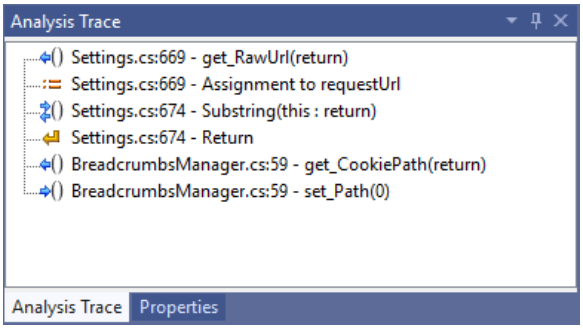


The following table describes the information provided on the Project Summary tabs.

Tab	Description
Summary	Displays high-level audit project information.
Certification	Displays the certification status for the . Results certification is a check to ensure that the have not been altered after produced them.
Build Information	Displays the following information: • Build details including the build ID, build label, number of files scanned, lines of code, and the date of the scan, which might be different than the date the files were translated • List of files scanned with file sizes and timestamps • Libraries referenced in the scan
Analysis Information	Displays the version of that performed the scan, details about the computer on which the scan was run, and the user who started the scan. The Analysis Information subtabs contain the following information: • **Security Content**—Lists information about the Rulepacks (including the Rulepack name, version, ID, and SKU) and the external metadata used in the scan • **Properties**—Displays the configuration properties used in the scan • **Commandline Arguments**—Displays the command-line options used in the scan • **Warnings**—Lists all errors and warnings that occurred during the scan

3.5.3. Analysis Trace window

When you select an issue, the Analysis Trace window displays the trace that the analyzer used to detect the issue.



This trace is presented in sequential order. For dataflow issues, this trace is a presentation of the path that the tainted data follows from the source function to the sink function. For example, when you select an issue that is related to potentially tainted dataflow, the Analysis Trace window shows the direction of the dataflow in this section of the source code.

The Analysis Trace window uses the icons described in the following table to show how the dataflow moves in this section of the source code or execution order.

Icon	Description
	Data is assigned to a field or variable
	Information is read from a source external to the code (HTML form, URL, and so on)
	Data is assigned to a globally scoped field or variable
	A comparison is made
	The function call receives tainted data
	The function call returns tainted data
	Passthrough, tainted data passes from one parameter to another **Note** This is typically shown as functionA(x : y) to indicate that data is transferred from x to y. The x and y values are either: • An argument index • `return` —The return value of a function • `this` —The instance of the current object • A specific object field or key
	An alias is created for a memory location
	Data is read from a variable
	Data is read from a global variable
	Tainted data is returned from a function
	A pointer is created
	A pointer is dereferenced
	The scope of a variable ends
	The execution jumps
	A branch is taken in the code execution
	A branch is not taken in the code execution

Icon	Description
	Generic
	A runtime source, sink, or validation step
	Taint change

The Analysis Trace window can contain inductions. Inductions provide supporting evidence for their parent nodes. Inductions consist of:

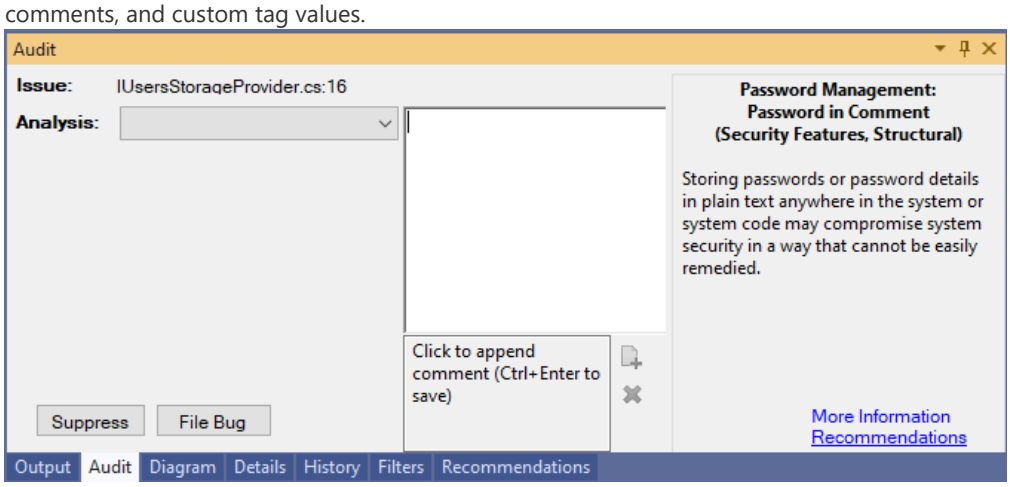
- A text node displayed in italics as a child of the trace node. This text node is expanded by default.
- An induction trace, displayed as a child of the text node.

To display the induction reference information for that induction, click it.

3.5.4. Issue Auditing window

The Issue Auditing window displays detailed information about each issue on the following tabs:

- The **Audit** tab displays information about the selected issue and enables auditors to add an audit evaluation, comments, and custom tag values.

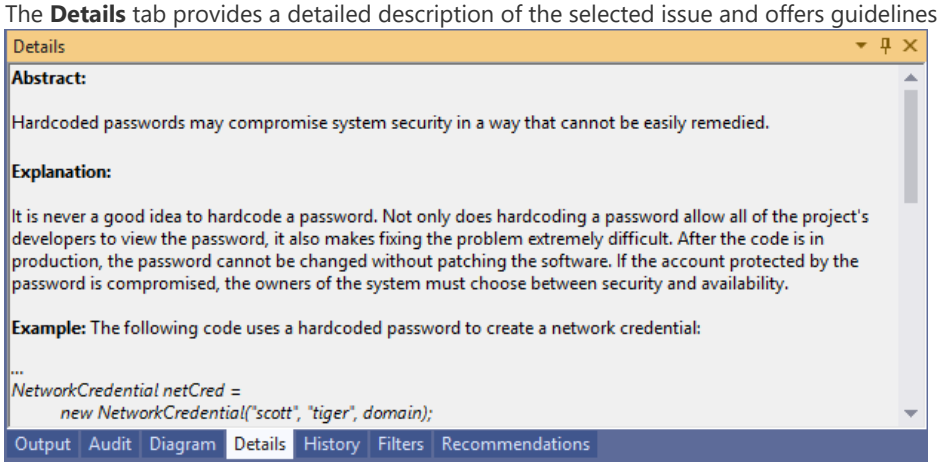


The following table describes the elements of the **Audit** tab.

Element	Description
Issue	Displays the issue location, which includes the file name and line number.
Analysis	Lists values that the auditor can use to assess the issue. Valid values for the Analysis tag are Not an Issue, Reliability Issue, Bad Practice, Suspicious, and Exploitable.
<custom_tagname>	Displays any custom tags if defined for the audit project. If the audit results have been submitted to in , then in addition to any other custom tags, the tab displays the following tags: ○ **AA_Prediction**—Exploitability level that assigned to the issue. You cannot change this tag value. ○ **AA_Confidence**—Confidence level from for the accuracy of its AA_Prediction value. You cannot change this tag value. ○ **AA_Training**—Whether to include or exclude the issue from training. You can change this value. For more information about tags, see the .
Suppress	Suppresses the issue.
File Bug	Provides access to a supported bug tracking system, such as Azure DevOps Server. For a list of supported bug tracking systems, see the document.
Comments	Submits additional information about the issue as a comment.
Rule Information	Shows information, such as the category and kingdom that describes the issue.
More Information	Opens the **Details** tab.
Recommendations	Opens the **Recommendations** tab.

For information about auditing, see Auditing Issues.

- The **Details** tab provides a detailed description of the selected issue and offers guidelines to address it.



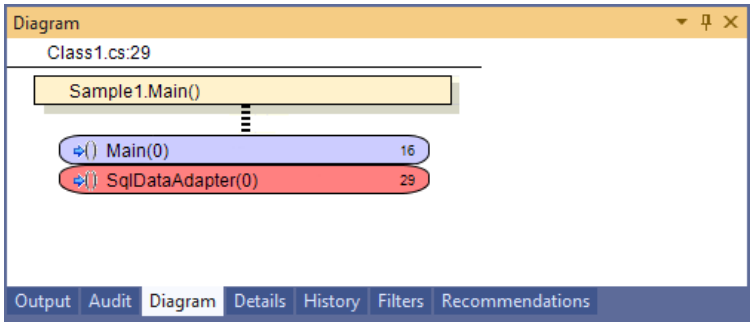
The Details tab includes some or all the sections described in the following table.

Section	Description
Abstract/Custom Abstract	Summary of the issue, including any custom abstracts defined by your organization.
Explanation/Custom Explanation	Description of the conditions in which this type of issue occurs. This includes a discussion of the vulnerability, the constructs typically associated with it, how an attacker can exploit it, and the potential consequences of an attack. This section also includes any custom explanations defined by your organization.
Instance ID	Unique identifier for the issue.
Primary Rule ID	Identifies the primary rule that found the issue.
Priority Metadata Values	Priority metadata values for this issue including impact and likelihood.
Legacy Priority Metadata Values	Legacy priority metadata values for the issue including severity and confidence.

- The **Recommendations** tab provides suggestions and examples of how to secure the vulnerability or remedy the bad practice. The recommendations include some or all the sections described in the following table.

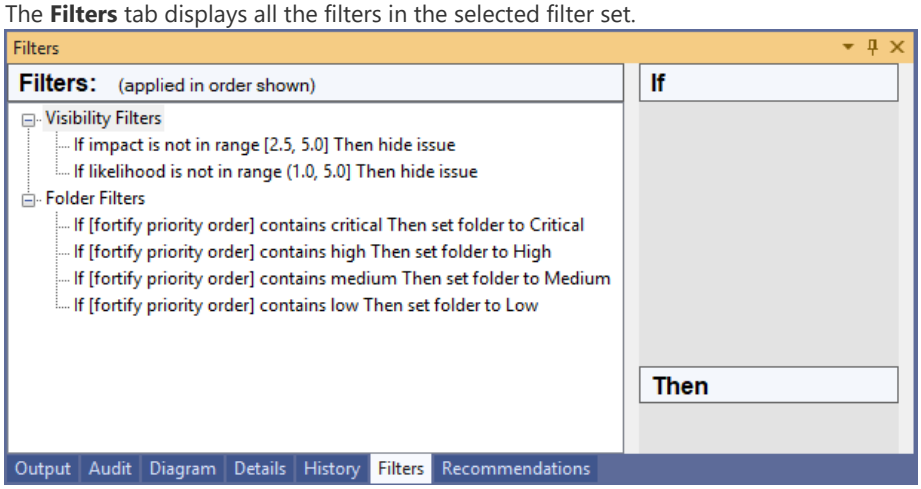
Section	Description
Recommendations/Custom Recommendations	Describes possible solutions for the selected issue. It can also include examples and recommendations defined by your organization.
Tips/Custom Tips	Provides useful information specific to the selected issue, and any custom tips defined by your organization.
References/Custom References	Lists references for the recommendations provided, including any custom references defined by your organization.

- The **History** tab displays a complete list of audit actions, including details such as the date and time, and the name of the user who modified the issue.
- The **Diagram** tab displays a graphical representation of the node execution order, call depth, and expression type of the selected issue. This tab displays information that is relevant to the rule type. The vertical axis represents the execution order.



For dataflow issues, the trace starts with the first function to call the taint source, then traces the calls to the source (blue node) and ends the trace at the sink (red node). In the diagram, the source (src) and sink nodes are also labeled. A red X on a vertical axis indicates that the function called finished executing.
The horizontal axis shows the call depth. A line shows the direction that control is passed. If control passes with tainted data traveling through a variable the line is red, and when it is without tainted data, the line is black.
The icons used for the expression type of each node in the diagram are the same icons used in the Analysis Trace window. For a description of the icons, see Analysis Trace Window.

- The **Filters** tab displays all the filters in the selected filter set.



The following table describes the options to create new filters.

Option	Description
Filters	Displays a list of the visibility and folder filters configured in the selected filter set, where: ○ **Visibility Filters** show or hide issues ○ **Folder Filters** sort the issues into the folder tabs in the Analysis Results window Right-click a filter to show issues that match the filter or to enable, disable, copy, or delete it.
If	Displays the conditions for the selected filter. The first list displays issue attributes, the second list specifies how to match the attribute, and the third is the value the filter matches.
Then	Indicates the filter type, where **Hide Issue** is a visibility filter and **Set Folder to** is a folder filter.

For information about creating filters, see Creating Filters from the Filters Tab.

3.5.5. Code Editor

The Code Editor shows the section of code related to the issue selected in the Analysis Results window. When multiple nodes represent an issue in the Analysis Trace window, the Code Editor shows the code associated with the selected node.

3.5.6. Grouping issues

The items visible in the window vary depending on the selected grouping attribute. The value you select from the **Group by** list sorts issues in all visible folders into subfolders. The grouping attributes enable you to group and view the issues in different ways.

You can view issues using any of the grouping attributes, and you can create and edit customized groups. The following table describes the standard grouping attributes.

Attribute	Description
Analysis	Groups issues by the analysis tag value assigned, such as Suspicious, Exploitable, and Not an Issue.
Analysis Type	Groups issues by analyzer product, such as SCA, WEBINSPECT, and SECURITYSCOPE ().
Analyzer	Groups issues by analyzer group, such as Control Flow, Data Flow, Semantic, and Structural.
App Defender Protected	Groups issues by whether Application Defender can protect the vulnerability category.
Category	Groups issues by vulnerability category. This is the default setting.
Category Analyzer	Groups issues by category and then by analyzer.
<custom_tagname>	Groups issues by selected custom tag.
File Name	Groups issues by file name.
Fortify Priority Order	Groups issues as Critical, High, Medium, and Low based on the combined values of impact and likelihood.
Kingdom	Groups issues by the Seven Pernicious Kingdoms classification.
<metadata_listname>	Groups issues using the alternative metadata external list names (for example, OWASP Top 10 *<year>*, CWE, PCI SSF *<version>*, STIG *<version>*, and so on).
New Issue	Shows which issues are new since the last scan. For example, if you run a new scan, any issues that are new display in the tree under the **New Issue** subfolder and the others are displayed in the **Existing Issue** subfolder. Issues not found in the latest scan are displayed in the **Removed** subfolder. **Note** If you are remediating results that reside in , these subfolders are named **NEW**, **UPDATED**, and **REMOVED**, respectively.
New Issue by Category	Groups issues that are new since the last scan and then by category. Also see New Issue.
Package	Groups issues by package or namespace. Does not appear for projects for which this option is not applicable, such as C projects.

Attribute	Description
Priority by Category	Groups issues by Fortify Priority Order and then by category.
Sink	Groups issues that share the same dataflow sink functions.
Source	Groups issues that share the same dataflow source functions.
Taint Flag	Groups issues by the taint flags that they contain.
<none>	Displays a flat view without any grouping.

Creating a Custom Group By Option

3.5.6.1. Creating a custom Group By option

You can create a custom Group By option that groups issues in a hierarchical format in sequential order based on specific attributes.

To create a new Group By option:

1. From the **Group by** list, select **<Edit>**.
   The Edit Custom Groupings dialog box opens.
2. To create a grouping from a provided set of group types, select a grouping type from the **Grouping Types** list. For example, selecting **Category Analyzer** group type creates a list that has top-level nodes that contain the category of the issue, such as Buffer Overflow, with the issues grouped below by analyzer, such as semantic, or dataflow, followed by the issues.
   `-Buffer Overflow [0/2]`
   `--DataFlow [0/1]`
   `----Main.cs:234`
   `-+Semantic [0/1]`
3. To create a custom group by option, select **Create New** from the **Grouping Types** list, and then do the following:
   a. In the Create New dialog box, type a group name, and then click **OK**.
   b. From the list on the left, select a grouping type, and then click the right arrow to move the option to the **Grouping Order** column.
   c. Repeat step b to select additional grouping types.

3.5.7. Searching for issues

In the window, use the search box located below the issue list to find specific issues and to limit the issues displayed in a folder. After you type a search term, the label next to the folder name changes to indicate the number of issues that match the search as a subset of the total.

To perform a simple search, do one of the following:

- Type a search query in the search box, and then press **Enter**.
  
- To select a search term that you used previously (during the current session), click the arrow in the search box, and then select a search term from the list. discards saved search terms after you exit Visual Studio.

The Analysis Results window displays the search results.

Performing Advanced Searches

Search Syntax

Search Modifiers

Search Query Examples

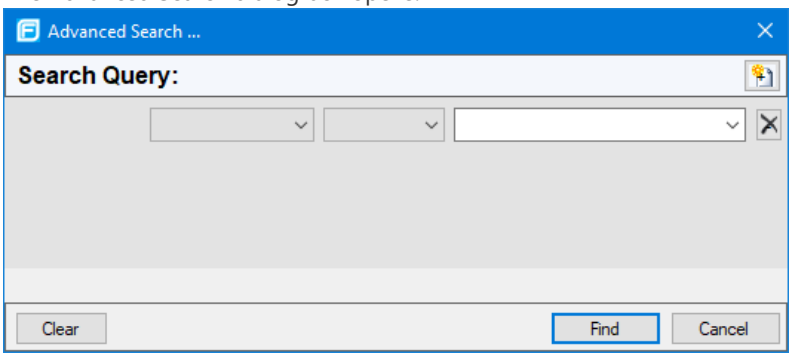
3.5.7.1. Performing advanced searches

You can use the advanced search feature to build complex search strings.

> **Note**
>
> Advanced search is not available when you remediate audit results that are stored in .

To use the advanced search feature:

1. To the right of the search box, click the **Advanced Search** button .
   The Advanced Search dialog box opens.



2. From the first list on the left, select a modifier.
   To specify an unqualified search term, select **Any Attribute** from the modifier list.
3. From the middle list, select a comparison term.
4. In the box on the right, either type a search term, or select one from the list.
   The search term list includes the known values in the current scan for the specified modifier. However, you can type any value into this box.
5. To add an AND or OR row to the query, click the **Add Criteria** button .
6. To set the operator, click either **AND** or **OR**.
7. Specify the modifier, comparison term, and search term.
8. Add as many rows as you need for the search query.
9. To remove a row, to the right of the row, click the **Delete** button .
10. To remove all rows, at the bottom of the dialog box, click **Clear**.
11. To submit your completed search query, click **Find**.

> **Note**
>
> **Find** is only enabled after you create a complete search query.

3.5.7.2. Search syntax

To indicate the type of comparison to perform, wrap the search terms with delimiters. The following table shows the syntax to use for the search string.

Comparison	Description
contains	Searches for a term without any qualifying delimiters
equals	Searches for an exact match if the term is wrapped in quotation marks (`""`)
regex	Searches for values that match a Java-style regular expression delimited by a forward slash (`/`) Example, `/eas.+?/` **Note** This search comparison is not available when you remediate audit results stored in .
number range	Searches for a range of numbers using the standard mathematical interval notation of parentheses and/or brackets to indicate whether the endpoints are excluded or included, respectively. Example: (2,4] indicates greater than two and less than or equal to four
not equals	Excludes issues specified by the string by preceding the string with an exclamation character (!) Example, `file:!Main.java` returns all issues that are not in `Main.java` .

You can further qualify search terms with modifiers. The syntax for using a modifier is `<modifier>:<search_term>` . For more information, see Search Modifiers.

A search string can contain multiple modifiers and search terms. If you specify more than one modifier, the search returns only issues that match all the modified search terms. For example, `file:ApplicationContext.java category:SQL Injection` returns only SQL injection issues found in `ApplicationContext.java` .

If you use the same modifier more than once in a search string, then the search terms qualified by those modifiers are treated as an `OR` comparison. For example, `file:ApplicationContext.java category:SQL Injection category:Cross-Site Scripting` returns SQL injection issues and cross-site scripting issues found in `ApplicationContext.java` .

For complex searches, you can also insert the AND or the OR keyword between your search queries. Note that AND and OR operations have the same priority in searches.

3.5.7.3. Search modifiers

You can use a search modifier to specify to which issue attribute the search term applies. To use a modifier that contains a space in the name, such as the name of the custom tag, you must enclose the modifier in brackets. For example, to search for issues that are new, type `[issue age]:new` .

A search that is not qualified by a modifier matches the search string on the following attributes: kingdom, primary rule id, analyzer, filename, severity, class name, function name, instance id, package, confidence, type, subtype, taint flags, category, sink, and source.

The following examples describe using the search with and without applying a search modifier:

- To apply the search to all modifiers, type a string, such as `control flow`. This searches all the modifiers and returns any results that contain the "control flow" string.
- To apply the search to a specific modifier, type the modifier name and the string as follows: `analyzer:control flow`. This returns all results detected by the Control Flow Analyzer.

The following table lists descriptions of the search modifiers. A few modifiers have a shortened modifier name indicated in parentheses in the Modifier column. You can use either modifier name.

Search Modifier (Issue Attribute)	Description
accuracy	Searches for issues based on the accuracy value specified (0.1 through 5.0).
analysis	Searches for issues that have the specified audit analysis value such as exploitable, not an issue, and so on.
[analysis type]	Searches for issues by analyzer product such as SCA and WEBINSPECT.
analyzer	Searches the issues for the specified analyzer such as control flow, data flow, structural, and so on.
[app defender protected] (def)	Searches for issues based on whether Application Defender can protect the vulnerability category (protected or not protected).
audience	Searches for issues based on intended audience such as dev, targeted, medium, broad, and so on. **Note** This metadata is legacy information that is no longer used and will be removed in a future release. recommends that you do not use this search modifier.
audited	Searches the issues to find true if the primary tag is set and false if the primary tag is not set. The default primary tag is the Analysis tag.
category (cat)	Searches for the given category or category substring.
class	Searches for issues based on the specified class name.
comments (comment, com)	Searches the comments submitted on the issue.
commentuser	Searches for issues with comments from a specified user.
confidence (con)	Searches for issues that have the specified confidence value. calculates the confidence value based on the number of assumptions made in code analysis. The more assumptions made, the lower the confidence value.

Search Modifier (Issue Attribute)	Description
`<custom_tagname>`	Searches for issues based on the value of the specified custom tag. You can search a list-type custom tag using a range of values. The values of a list-type custom tag are an enumerated list where the first value is 0, the second is 1, and so on. You can use the search syntax for a range of numbers to search for ranges of list-type custom tag values. For example, `analysis:[0,2]` returns the issues that have the values of the first three Analysis values, 0, 1, and 2 (Not an Issue, Reliability Issue, and Bad Practice). To search for a specific date in a date-type custom tag, specify the date in the format: yyyy-mm-dd. To search for issues that have no value set for a custom tag, use `<none>` as the search term. For example, to search for all issues that have no value set in the custom tag labeled Target Date, type: `[Target Date]:<none>`.
`dynamic`	Searches for issues that have the specified dynamic hot spot ranking value.
`file`	Searches for issues where the primary location or sink node function call occurs in the specified file path.
`[fortify priority order]`	Searches for issues that have a priority level that matches the specified issue priority. Valid values are `critical`, `high`, `medium`, and `low`.
`historyuser`	Searches for issues that have audit data modified by the specified user.
`impact`	Searches for issues based on the impact value specified (0.1 through 5.0).
`[instance id]`	Searches for an issue based on the specified instance ID.
`[issue age]`	Searches for the issue age, which is `new`, `updated`, `reintroduced`, or `removed`.
`[issue state]`	Searches for audited issues based on whether the issue is an open issue or not an issue (determined by the level of analysis set for the primary tag).
`kingdom`	Searches for all issues in the specified kingdom.
`likelihood`	Searches for issues based on the specified likelihood value (0.1 through 5.0).

Search Modifier (Issue Attribute)	Description
line	Searches for issues on the primary location line number. For dataflow issues, the value is the sink line number. Also see sourceline.
maxconf	Searches for all issues that have a confidence value up to and including the number specified as the search term.
minconf	Searches for all issues that have a confidence greater than or equal to the specified value.
<metadata_listname>	Searches for issues based on the value of the specified metadata external list. Metadata external lists include [owasp top ten <*year*>], [cwe top 25 <*version*>], [pci ssf <*version*>], [stig <*version*>], and others.
package	Searches for issues where the primary location occurs in the specified package or namespace. (For dataflow issues, the primary location is the sink function.)
[primary context]	Searches for issues where the primary location or sink node function call occurs in the specified code context. Also see sink and [source context].
primary	Searches for issues that have the specified primary tag value. By default, the primary tag is the Analysis tag.
primaryrule (rule)	Searches for all issues related to the specified sink rule.
probability	Searches for issues based on the probability value specified (1.0 through 5.0).
[remediation effort]	Searches for issues based on the remediation effort value specified. The valid values are whole numbers from 1.0 to 12.0.
ruleid	Searches for all issues reported by the specified rule IDs used to generate the issue source, sink, and all passthroughs.
severity (sev)	Searches for issues based on the specified severity value (legacy metadata).
sink	Searches for issues that have the specified sink function name. Also see [primary context].
source	Searches for dataflow issues that have the specified source function name. Also see [source context].

Search Modifier (Issue Attribute)	Description
[source context]	Searches for dataflow issues that have the source function call contained in the specified code context. Also see source and [primary context].
sourcefile	Searches for dataflow issues with the source function call that the specified file contains. Also see file.
sourceline	Searches for dataflow issues having taint source entering the flow on the specified line. Also see line.
status	Searches issues that have the status reviewed, unreviewed, or under review.
suppressed	Searches for suppressed issues.
taint	Searches for issues that have the specified taint flag.
trace	Searches for issues that have the specified string in the dataflow trace.
tracenode	Enables you to search on the nodes within an issue's analysis trace. Each tracenode search value is a concatenation of the tracenode's file path, line number, and additional information.
tracenodeallpaths	Searches for the specified value in all the steps of the analysis trace.
url	Searches for issues based on the specified URL.
user	Searches for issues assigned to the specified user.

3.5.7.4. Search query examples

The following table contains search query examples.

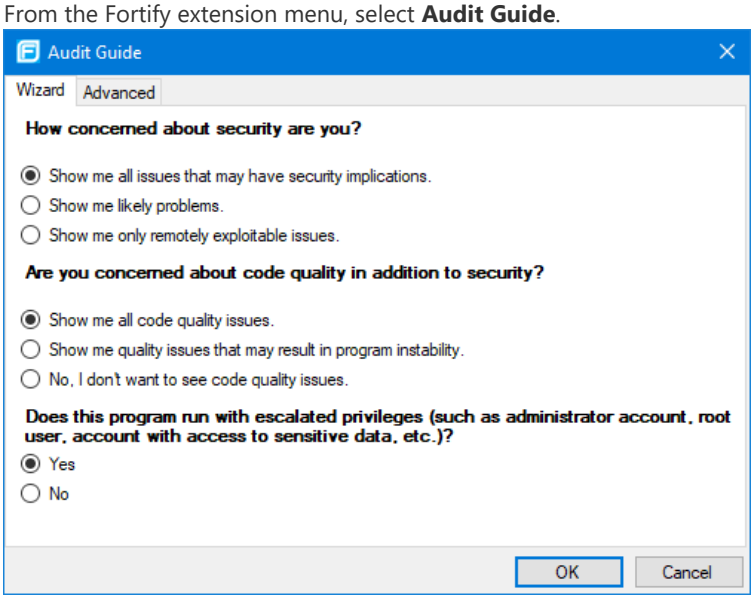
Search Target	Query
All privacy violations in file names that contain `jsp` with `getSSN()` as a source	`category:privacy violation source:getssn file:jsp`
All file names that contain `com/test/123`	`file:com/test/123`
All paths that contain traces with `mydbcode.sqlcleanse` as part of the name	`trace:mydbcode.sqlcleanse`
All paths that contain traces with `cleanse` as part of the name	`trace:cleanse`
All issues that contain `cleanse` as part of any modifier	`cleanse`
All suppressed vulnerabilities with `asdf` in the comments	`suppressed:true comments:asdf`
All categories except for SQL Injection	`category:!SQL Injection`
All issues that have a value specified for a custom tag labeled `version`	`version:!<none>`

3.5.8. Filtering issues with the Audit Guide

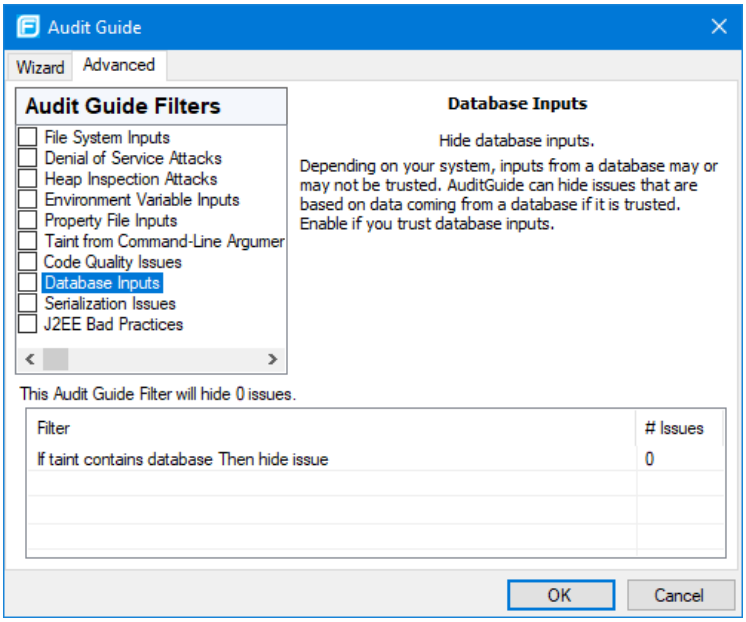
You can use the Audit Guide wizard to filter vulnerability issues in your audit project based on a set of security-related questions.

To use the Audit Guide:

1. From the Fortify extension menu, select **Audit Guide**.



2. Select the settings for the types of issues you want to display.
3. To use the advanced filtering options, select the **Advanced** tab.



- In the **Audit Guide Filters** list, select the types of issues to filter out and ignore.
  To see a description on the right side, click an issue type.
  As you select items in the **Audit Guide Filters** list, the displays the filter details for this issue type below the **Audit Guide Filters** list and shows the number of issues found by each filter.

4. Click **OK** to apply your filter selections.

3.6. Auditing analysis results

The security team examines the Fortify Project Results (FPR) and assigns values to custom tags associated with audit project issues during a code audit. The development team can then use these tag values to determine which issues to address and in what order.

By default, provides a single default tag named Analysis. Valid values for the Analysis tag are Not an Issue, Reliability Issue, Bad Practice, Suspicious, and Exploitable. You can change the Analysis tag attributes, revise the tag values, or add new values based on your auditing needs.

To refine your audit process, you can define your own custom tags. For example, you might create a custom tag to track the sign-off process for an issue. After a developer audits his own issues, a security expert can review those same issues and mark each as "approved" or "not approved." For more information, see Configuring Custom Tags for Auditing.

You can also define custom tags from , either directly with issue template uploads through , or through issue templates in audit project files.

Note

Although you can add new custom tags as you audit a project, if these custom tags are not defined in for the issue template associated with the application version, then the new tags are lost if you upload the audit project (FPR) to .

This section contains the following topics:

- Auditing issues
- Suppressing issues
- Submitting an issue as a bug

3.6.1. Auditing issues

To evaluate and assign audit values to an issue or group of issues:

1. Select the issue or group of issues in the Analysis Results window (see Analysis Results Window).

> **Note**
> If multiple issues are selected, then this information is displayed on the **Audit** tab as **Issue: Multiple Issues Selected**.

2. Read the abstract on the **Audit** tab, which provides high-level information about the issue, such as the analyzer that found the issue.
   For example, **Command Injection (Input Validation and Representation, data flow)** indicates that this issue, detected by the Dataflow Analyzer, is a Command Injection issue in the Input Validation and Representation kingdom.
3. Click the **Details** tab to see more details about the issue.
4. On the **Audit** tab, select an analysis value for the issue to represent your evaluation.
5. Specify values for any custom tags as required by your organization.
   To specify a date in a date-type custom tag, click the **Select Date** button to select a date from a calendar.
   To specify text in a text-type custom tag, click the **Edit Text** button , and then enter text in the Edit Text Value dialog box.
6. If the audit results have been submitted to in , then you can specify whether to include or exclude the issue from training from the **AA_Training** list.

   > **Note**
   > If you select a different value for the analysis tag than the **AA_Prediction** value set by , and you select Include from the **AA_Training** list, then the next time the data is submitted to , it updates the information used to predict whether an issue represents a true vulnerability. For more information about tags, see the .

7. (Optional) In the **Comments** box, click to add comments relevant to the issue and your evaluation, and then click the **Add Comment** button .

3.6.2. Suppressing issues

You can suppress issues that are either fixed or issues that you do not plan to fix. Suppression marks the issue, and all future discoveries of this issue as suppressed. As such, it is a semi-permanent marking of a vulnerability.

To suppress an issue, do one of the following:

- Select the issue in the Analysis Results window, and then click **Suppress** on the **Audit** tab.
- Right-click the issue in the Analysis Results window, and then select **Suppress Issue**.

To display results that have been suppressed:

- From the **Visibility** list list on the **Analysis Results** toolbar, select **Show Suppressed Issues**.

3.6.3. Submitting an issue as a bug

You can submit issues to your bug tracking application if integration between the applications has been configured. For a list of supported client-side bug tracking plugins, see the document.

To submit an issue as a bug:

1. In the Analysis Results window, select an issue.
2. In the Issue Auditing window, select the **Audit** tab, and then click **File Bug**.
   If this is the first time you are submitting a bug, the Select Bug Tracker Integration dialog box opens. Select a bug tracking application, and then click **Select**.
3. If prompted, provide your bug tracker login credentials.
4. Specify the values if changes are needed and review the issue description.
   Depending on the integration and your bug tracking application, the values include items such as product name, severity level, summary, and version.
5. Click **File Bug**.

The issue is submitted as a bug in the bug tracking application.

3.7. Using issue templates

produces comprehensive results for source code analysis. On large codebases, these results can be overwhelming. Issue templates provide features to sort and filter the results in ways that best suit your needs. The filtering and sorting mechanisms appropriate during a given phase in the development process can change depending on the phase of development. Similarly, the filtering and sorting mechanisms might vary depending on the role of the user.

You can sort issues by grouping issues into folders, which are logically defined sets of issues presented in the tabs on the window. You can further customize the sorting by providing custom definitions for the folders into which the issues are sorted. You can provide definitions for any number of folders, whose contents are then defined by filters. Filters can either alter the visibility of an issue or place it into a folder. When used to sort issues into folders, you can define the nature of the issues that appear in the customized folders.

You group filters into filter sets and then use the filter sets to sort and filter the issues displayed. An issue template can contain definitions for multiple filter sets. Using multiple filter sets in an audit project enables you to quickly change the sorting and visibility of the issues you are auditing. For example, the default issue template used in the interface provides two filter sets. These filter sets provide an increasingly restrictive view of security-related issues. Defining multiple filter sets for an audit project enables different views for different users, and a customized view does not affect any other views.

In addition to providing sorting and filtering mechanisms, you can also customize the auditing process by defining custom tags in the issue template. Auditors associate custom tags with issues during the audit. For example, you can use custom tags to track impact, severity, or priority of an issue using the same names and values used to track these attributes in other systems, such as a bug tracking system. For more information about custom tags, see Configuring Custom Tags for Auditing.

Issue templates contain the following settings:

- Folder filters—Control how issues are sorted into the folders
- Visibility filters—Control which issues are shown and hidden
- Filter sets—Group folder and visibility filters
- Folder properties—Name, color, and the filter set in which it is active
- Custom tags—Specify which audit tags are displayed and the values for each

The issue template applied to a project uses the following order of preference:

1. The template that exists in the audit project
2. The template `<tools_install_dir>\Core\config\filters\defaulttemplate.xml`
3. The template `<sca_install_dir>\Core\config\rules\defaulttemplate.xml`
4. The embedded Fortify default template

- Saving issue templates
- Exporting issue templates
- Importing issue templates

3.7.1. Saving issue templates

Once an issue template is associated with an audit project, all changes made to that template, such as the addition of folders, custom tags, filter sets, or filters, apply to the audit project, and the issue template is stored in the FPR when the project is saved. For information about how to change the issue template associated with an audit project, see Importing Issue Templates.

3.7.2. Exporting issue templates

Exporting an issue template creates a file that contains the filter sets and custom tags for the current audit project. This is useful if you want to import the issue template into another audit project file.

To export an issue template:

1. From the Fortify extension menu, select **Project Configuration**.
2. Select the **Filter Sets** tab.

3. Click **Export Issue Template**.
4. Browse to the location where you want to save the file.
5. Type a file name without an extension, and then click **Save**.

The template settings are saved to the new XML file.

3.7.3. Importing issue templates

Importing an issue template overwrites the project configuration settings. The filter sets and custom tags are replaced with the ones in the issue template.

To import an issue template:

1. From the Fortify extension menu, select **Project Configuration**.
2. Select the **Filter Sets** tab.
3. Click **Import Issue Template**.
4. Select the issue template file to import, and then click **Open**.

The filter sets and custom tags are updated.

To revert to the default issue template settings, click **Reset Issue Template to Default**.

3.8. Configuring custom tags for auditing

Custom tags enable auditors to set additional attributes that describe the issue. You can use custom tag values to filter and find issues.

The **Analysis** tag is configured by default and when you apply the **Analysis** tag to an issue, the icon in the Analysis Results issue list indicates the analysis status.

To refine your auditing process, you can define your own custom tags. You can create the following types of custom tags: list, decimal, string, and date. For example, you might create a list-type custom tag to track the sign-off process for an issue. After a developer audits his own issues, a security expert can review those same issues and mark each as "approved" or "not approved."

After you define a custom tag, the **Audit** tab displays it below the Analysis tag, which enables you to specify values as they relate to specific issues. The tag is also available in other areas of the interface, such as in the **Group By** list as a way to group issues in a folder, in the search box as a search modifier (similarly available as a modifier for filters), and in the project summary graph as an attribute by which to graphically sort issues.

This section contains the following topics:

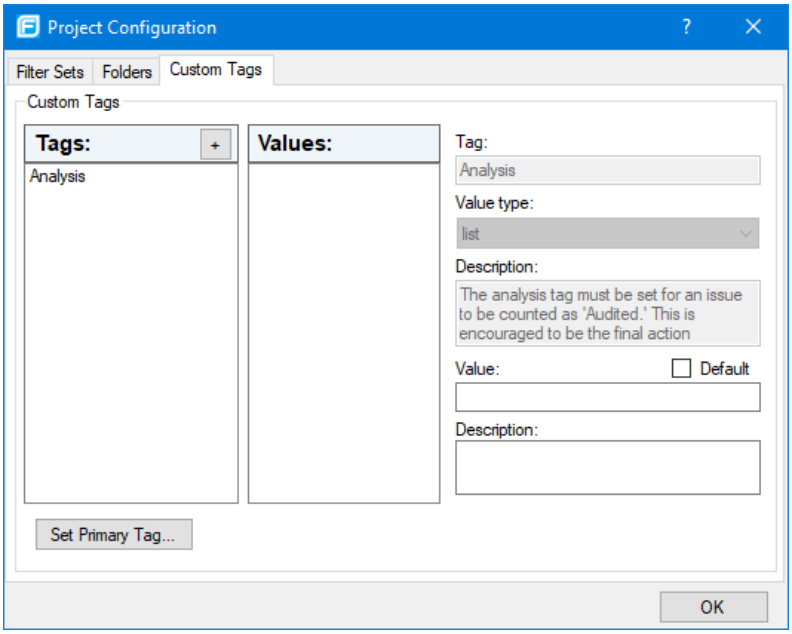
- Adding a custom tag
- Hiding a custom tag

3.8.1. Adding a custom tag

You can add custom tags to use when you audit results. Custom tags are saved as part of an issue template.

To add a custom tag:

1. From the Fortify extension menu, select **Project Configuration**.
2. Select the **Custom Tags** tab.



3. Next to **Tags**, click the **Create Tag** button .

> **Note**
> Any previously hidden tags are listed, and you can re-enable them. To create a new tag, click **Create New**.

4. In the Create New Tag dialog box, type a name for the tag.
5. From the **Type** list, select the type of tag. The following tag types are available:
   - **List**—Accepts selection from a list of values that you specify for the tag
   - **Date**—Accepts a calendar date
   - **Decimal**—Accepts a number with a precision of up to 18 (up to 9 decimal places)
   - **Text**—Accepts a string with up to 500 characters (HTML/XML tags and newlines are not allowed)
6. Click **OK**.
   The **Tags** list now includes the new tag.
7. To add a value for a list-type tag, do the following:
   1. From the **Tags** list, select the tag.
   2. Next to **Values**, click the **Add Value** button .
   3. In the Add Value dialog box, type a value, and then click **OK**.
   4. To use this value as the default for the new tag, select a value in the **Values** list, and then select **Default** on the right.
      If no default is selected, the default value for the custom tag is empty.
   5. To add a description for the value, type it in the **Description** box.
   6. Repeat steps b through e until you have added all the tag values.
8. To add a description for any tag type:
   1. From the **Tags** list, select the tag.
   2. Type a description in the **Description** box on the right.
9. To make this custom tag the primary tag:

> **Note**
> You can only set a list-type tag as a primary tag.

   1. Click **Set Primary Tag**.

2. In the Set Primary Tag dialog box, select the custom tag from the **Primary Tag** list, and then click **OK**.
   The primary tag determines the audit status for each issue as well as the audit icon in the Analysis Results window. By default, the primary tag is **Analysis**.

3.8.2. Hiding a custom tag

If you hide a custom tag, it is no longer available on the **Audit** tab or as a search or filter option. If you hide a custom tag that was set for any issues, that tag and values are hidden from the issue. You can make this tag available again when you create a custom tag (see Creating a Custom Tag). If you make the tag available again, the tag and values are restored.

> **Note**
> You cannot hide a custom tag that is set as the primary tag.

To hide a custom tag:

1. From the Fortify extension menu, select **Project Configuration**.
2. Select the **Custom Tags** tab.
3. Select the tag from the **Tags** list.
4. Next to **Tags**, click the **Hide Tag** button [-].

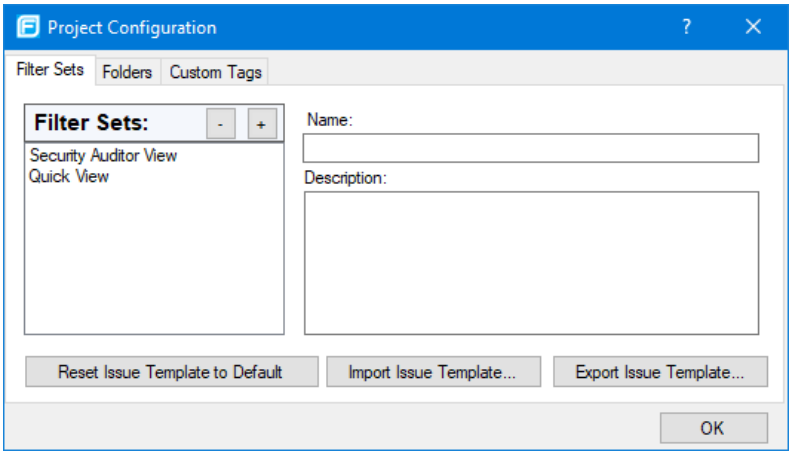
If you hide a tag that has an associated filter, you are prompted to delete the filter.

3.9. Creating a filter set

To create a new filter set, you copy an existing set, and then make changes the settings.

To create a new filter set:

1. From the Fortify extension menu, select **Project Configuration**.
2. Select the **Filter Sets** tab.



3. Next to **Filter Sets**, click the **Create Filter Set** button [+].
4. In the Create New Filter Set dialog box, type a name for the new filter set.
5. Select an existing filter set to copy, and then click **OK**.
6. To change the description of the new filter set, select it in the **Filter Sets** list, and then edit the text in the **Description** box on the right.

A new filter set with the same folders, visibility filters, and folder filters as the copied filter set is created.

Creating a Filter from the Analysis Results Window

Creating a Filter from the Filters Tab

Copying a Filter to Another Filter Set

Managing Folders

3.9.1. Creating a filter from the Analysis Results window

If you find an issue in a folder list that you want to hide or direct to another folder, you can create a new filter with the filter wizard. The wizard displays all the attributes that match the filter conditions.

> **Note**
>
> To find the filter that directed the issue to the folder, right-click the issue, and select **Why is this issue here?**
> To find the filter that hid an issue, right-click the issue, and then select **Why is this issue hidden?**

To create a new filter from an issue:

1. In the Analysis Results window, select a filter set from the **Filter Set** list.
2. Right-click an issue, and then select **Generate Filter**.
   The Create Filter dialog box opens and displays a list of suggested conditions.
3. To expand the conditions list, click **More Choices**.
4. Select the conditions to use for the filter. You can fine tune the filter later from the **Filter** tab.
5. To specify the type of filter you want to create, do one of the following:
   - To create a visibility filter, select **Hide Issue**.
   - To create a folder filter, select **Set Folder to**, and then select the folder name or select **Create New** to create a new folder.
     A new folder is displayed only in this filter set.
6. Click **Create Filter**.
   The new filter is placed at the end of the filter list. For folder filters, this gives the new filter the highest priority. Issues matching the new folder filter appear in the targeted folder.
7. To change the priority of a folder filter, drag the filter higher in the folder filter list.

> **Note**
>
> The filter is created only in the selected filter set.

Creating a Filter from the Filters Tab

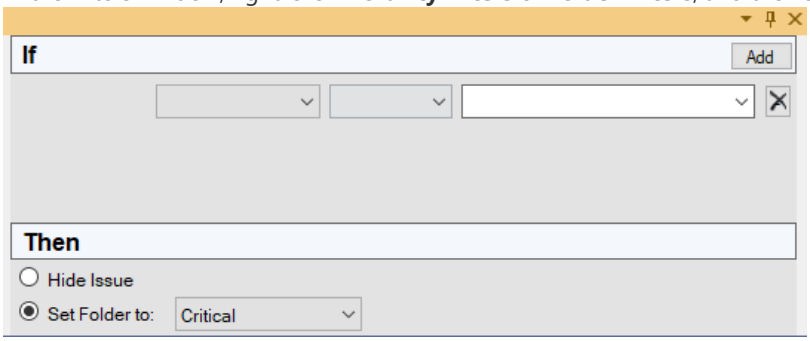
3.9.2. Creating a filter from the Filters tab

Use the **Filters** tab option to create general filters for the attributes and values you want to filter. The filter is created in the selected filter set only.

Folder filters are applied in order and the issue is directed to the last folder filter it matches in the list. The wizard places your new filter at the end of the list.

To create a new filter on the **Filters** tab:

1. In the Analysis Results window, select a filter set from the **Filter Set** list.
2. In the Filters window, right-click **Visibility Filters** or **Folder Filters**, and then select **Create New Filter**.



3. Under **If**, specify the conditions for the filter, by doing the following:
   1. From the first list, select an issue attribute.

For a description of the available issue attributes, see Search Modifiers.

2. From the second list, select how to match the value.
   The third list automatically displays the attribute values.
3. From the third list, select a value or specify a range as instructed.

4. Set **Then** to one of the following options:
   - To create a visibility filter, select **Hide Issue**.
   - To create a folder filter, select **Set Folder to**, and then select the folder name or select **Create New** to create a new folder.

   The new filter is displayed at the end of the list. For folder filters, this gives the new filter the highest priority. Issues that match the new folder filter are displayed in the targeted folder.
5. (Optional) For folder filters, drag the filter higher in the folder filter list to change its priority.

The issues are sorted based on the new filter.

> **Note**
>
> The filter is only created in the selected filter set.

Creating a Filter from the Analysis Results Window

3.9.3. Copying a filter to another filter set

Filter settings are local to the filter set. However, you can copy the filter to another filter set in the project. If you copy a folder filter to another filter set and that folder is not already active in the filter set, the folder is automatically added.

To copy a filter:

1. In the Analysis Results window, select a filter set from the **Filter Set** list.
2. On the **Filters** tab, right-click a filter, and then select **Copy Filter To**.
   The Select a Filter Set dialog box lists the filter sets.
3. Select a filter set, and then click **OK**.
   The filter is added to the destination filter set in the last position.
4. To change the order of the folder filters, drag the filters in the list.

3.10. Managing folders

Folders are logical sets of issues that are defined by the filters in the active filter set. Even though a folder can appear in more than one filter set, the contents might differ depending on the filters in that filter set that target the folder. To accommodate filter sets that attempt to provide sorting mechanisms that have little overlap, it is possible to have filter sets with different folders. Folders are defined without any relation to the filter sets in which they might appear.

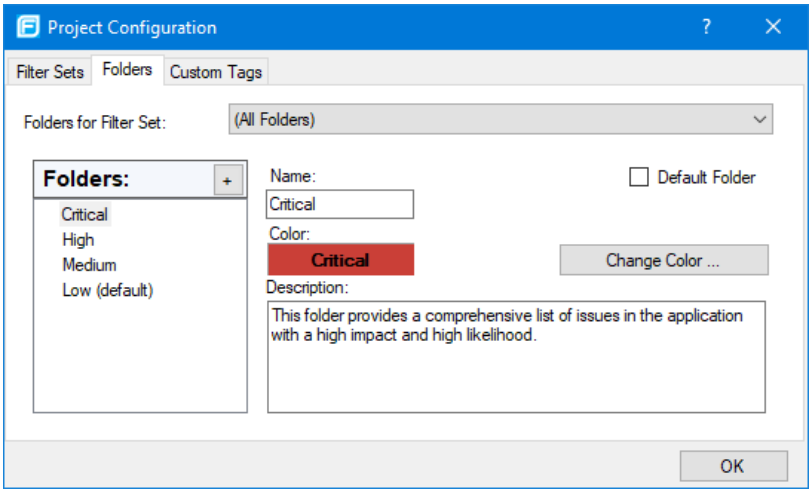
- Creating a folder
- Adding a folder to a filter set
- Renaming a folder
- Removing a folder

3.10.1. Creating a folder

You can add a new folder to a filter set so that you can display a group of issues you have filtered to the folder.

To create a folder:

1. From the Fortify extension menu, select **Project Configuration**.
2. Select the **Folders** tab.
   Currently defined folders are listed on the left. Folder properties including the name, color, and description of the selected folder are shown on the right.



3. To associate the new folder with an existing filter set, select a filter set from the **Folders for Filter Set** list.
   This selection updates the **Folders** list to display folders associated with the selected filter set.
4. To add a folder:
   1. Next to **Folders**, click the **Create Folder** button .
      The Create New Folder dialog box opens.
   2. Type a unique name for the new folder, select a folder color, and then click **OK**.
      The folder is added to the bottom of the **Folders** list.
5. To sort all issues that do not match a folder filter into this folder, select the **Default Folder** check box.
6. Click **OK**.

The new folder is added to the local issue template. The folder displays as a tab with the other folders in the window.

Note

To display issues in this folder, create a folder filter that targets the new folder (see Creating Filters from the Analysis Results Window and Creating Filters from the Filters Tab).

3.10.2. Adding a folder to a filter set

This section describes how to enable an existing folder in a filter set. Create a new folder that only appears in the selected filter set using the instructions in Creating Folders. To display issues in this folder, create a folder filter that targets the new folder.

To add a folder to a filter set:

1. From the Fortify extension menu, select **Project Configuration**.
2. Select the **Folders** tab.
3. From the **Folder for Filter Set** list, select a filter set to which you want to add an existing folder.
   This selection updates the **Folders** list to display folders associated with the selected filter set.
4. Next to **Folders**, click the **Add Folder** button .
   The Enable New Folder to the Filter Set dialog box opens. If all folders are already associated with the selected filter set, the Create New Folder dialog box opens.
5. Select the folder to add, and then click **Select**.
   The selected folder is listed.
6. Click **OK**.

The folder is displayed as a tab with the other folders in the window.

3.10.3. Renaming a folder

You can rename a folder. Modifying the name of a folder is a global change reflected in all filter sets.

To rename a folder:

1. From the Fortify extension menu, select **Project Configuration**.
2. Select the **Folders** tab.
3. From the **Folders for Filter Set** list, select a filter set that displays the folder you want to rename.
4. In the **Folders** list, select the folder you want to rename.
   The folder properties are displayed on the right.
5. In the **Name** box, type the new folder name.
6. Click **OK**.

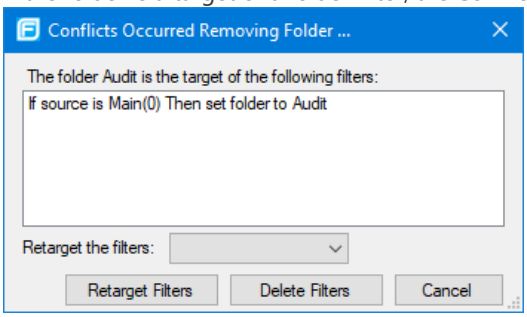
The tab displays the new folder name.

3.10.4. Removing a folder

You can remove a folder from a specific filter set without removing it from other filter sets.

To remove a folder:

1. From the Fortify extension menu, select **Project Configuration**.
2. Select the **Folders** tab.
3. From the **Folders for Filter Set** list, select a filter set, other than **(All Folders)**, that contains the folder you want to remove.
   The folders in the selected filter set are listed.
4. In the **Folders** list, select the folder you want to remove.
5. To the right of **Folders**, click the **Remove Folder** button .
   The folder is only removed from the selected filter set.
   If the folder is a target of a folder filter, the Conflicts Occurred Removing Folder dialog box opens.



   Do one of the following:
   - To target the filter to a different folder, select a folder from the **Retarget the filters** list, and then click **Retarget Filters**.
   - To delete the filter, click **Delete Filters**, and then click **Yes** to confirm the deletion.
6. Click **OK** to close the Project Configuration dialog box.

The folder is no longer displayed as a tab in the window.

3.11. Generating analysis results reports

The following topics provide information about generating reports from your .

- Issue reports
- Legacy reports

3.11.1. Issue reports

The issue reports described in this section are based on the Business Intelligence and Reporting Technology (BIRT) system. You can generate issue reports from the or from the command line (BIRTReportGenerator utility). For information about how to generate issue reports based on BIRT from the command line, see the .

The following table describes the issue reports available.

Report Template	Description
Cyber Resiliency Act 2024	This report lists issues related to the Cyber Resilience Act 2024 and provides information to help identify vulnerabilities that may require remediation.
CWE Top 25 2025	This report lists the most widespread and critical weaknesses that can lead to serious software vulnerabilities based on the 2025 CWE Top 25 Most Dangerous Software Weaknesses list.
CWE Top 25	This report lists the most widespread and critical weaknesses that can lead to serious software vulnerabilities (based on the National Vulnerability Database).
CWE/SANS Top 25	This report details issues related to the CWE/SANS Top 25 Most Dangerous Programming Errors and provides information about where and how to fix the issues. It describes the technical risk posed by unremediated issues discovered during analysis and provides an estimate of the development effort needed to test, verify, and fix them.
Developer Workbook	This report provides the information a developer needs to understand and fix the issues discovered during an application audit.
DISA CCI 2	This report provides a standard identifier for policy-based requirements that connects high-level policy expressions and low-level technical implementations.
DISA STIG	This report addresses DISA compliance based on STIG violations and provides information about where and how to fix the issues. It describes the technical risk posed by unremediated issues and provides an estimate of the development effort required to test, verify, and fix them.
FISMA Compliance: FIPS 200	This report addresses FISMA compliance related to FIPS-200 through controls specified in NIST SP 800-53. It details policy violations and provides information about where and how to fix the issues. It describes the technical risks posed by unremediated violations and provides an estimate of the development effort required to test, verify, and fix them.

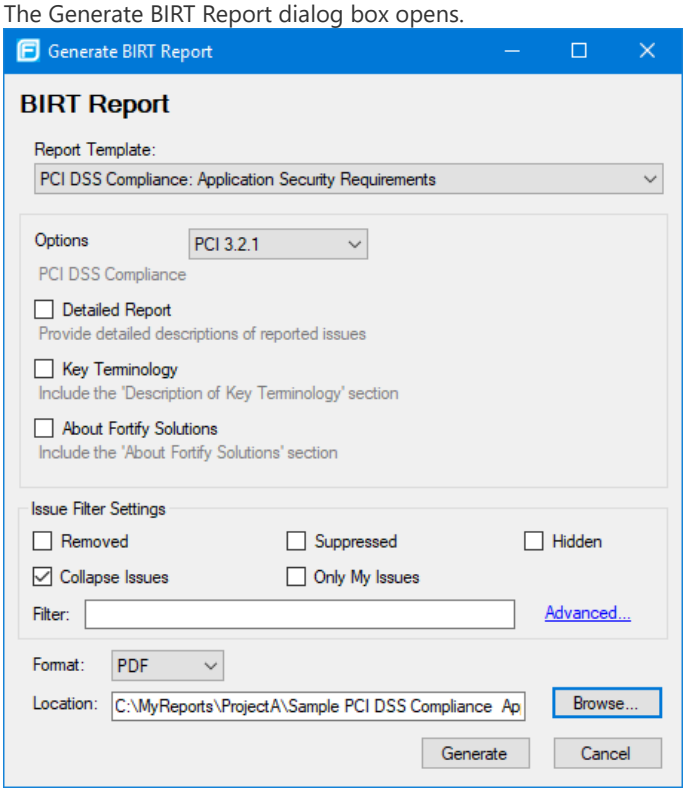
GDPR	This report groups all detected issues that are relevant to privacy under the EU General Data Protection Regulation (GDPR) legislation. Use this as a framework to help identify and protect personal data as it relates to application security.
MISRA	This report addresses compliance with either the Motor Industry Software Reliability Association (MISRA) C or C++ guidelines. The results focus on the security relevant guidelines and can be used to help create a compliance matrix for MISRA. This report describes the technical risk posed by the unremediated issues discovered during analysis and an provides an estimate of the development effort needed to test, verify, and fix them.
OWASP API Top 10	This report focuses on weaknesses affecting Web APIs and is intended to be used in combination with other standards and best practices to thoroughly capture all relevant risks. For example, use this report in combination with the OWASP Top 10 to identify issues related to input validation such as injections.
OWASP ASVS	This report groups detected issues based the OWASP Application Security Verification Standard security requirements for secure development.
OWASP MASVS 2.0	This report groups detected issues based on the OWASP Mobile Application Security Verification Standard requirements for secure mobile application development.
OWASP Mobile Top 10	This report details the top ten OWASP mobile-related issues and provides information about where and how to fix them. It describes the technical risk posed by the unremediated issues discovered during analysis and gives an estimate of the development effort required to test, verify, and fix them.
OWASP Top 10	This report details the top ten OWASP-related issues and provides information about where and how to fix them. It describes the technical risks posed by unremediated issues discovered during analysis and gives an estimate of the development effort required to test, verify, and fix the issues.
PCI DSS Compliance: Application Security Requirements	This report summarizes the application security portions of PCI DSS. It includes tests for 21 application security-related requirements across sections 3, 4, 6, 7, 8, and 10 of PCI DSS and reports whether each requirement is either "In Place" or "Not In Place."

PCI SSF Compliance: Secure Software Requirements	This report summarizes the application security portions of PCI SSF. It includes tests for 23 application security-related control objectives across Control Objective sections 2, 3, 4, 5, 6, 7,8, and A.2 of PCI SSF and reports whether each control objective is "In Place" or "Not In Place."

3.11.1.1. Generating issue reports

To generate an issue report:

1. From the Fortify extension menu, select **Generate BIRT Report**.
   The Generate BIRT Report dialog box opens.



2. From the **Report Template** list, select the type of report you want.
3. If available for the template, select the template version from the **Options** list.
4. Select the information you want to include in the report.

> **Note**
> Not all options are available for all report types.

   1. To include detailed descriptions of reported issues, select the **Detailed Report** check box.
   2. To categorize issues by Fortify Priority instead of folder names, select the **Categories By Fortify Priority** check box.
   3. To include Description of Key Terminology in the report, select the **Key Terminology** check box.
   4. To include the About Fortify Solutions section in the report, select the **About Fortify Solutions** check box.
5. To filter information from the report, select the optional issue filter settings as follows:
   - To include removed issues in the report, select the **Removed** check box.
   - To include suppressed issues in the report, select the **Suppressed** check box.
   - To include hidden issues in the report, select the **Hidden** check box.
   - To collapse issues of the same sink and type into a single issue, select the **Collapse Issues** check box.

- To include only issues assigned to your user name, select the **Only My Issues** check box.
- To build a search query to further filter the issues to include in the report, click **Advanced**. Your query will appear in the **Filter** box. For more information about the search modifiers, see Search Modifiers.

6. From the **Format** list, select a format for the report.
   You can save the report in the following formats: Portable Document Format (PDF), HTML, and Microsoft Word, and Microsoft Excel.

   Note
   When you open the report in Excel, you might get a warning that the file format and the file extension do not match. You can safely open the file in Excel.

7. To specify an alternative location to save the report, click **Browse**, and then select a location.
8. Click **Generate**.
9. If a report with the same file name already exists, you are prompted to either:
   - Click **No** to overwrite the existing report.
   - Click **Yes** to have the report saved to a file with a sequential number appended to the file name (for example: `Sample1_DISA_STIG(1).pdf`).

3.11.2. Legacy reports

The legacy reports include user-configurable report templates. Report templates provide several optional sections and subsections that gather and present specific types of data. You can generate legacy reports from or from the command line (ReportGenerator utility). For information about how to generate legacy reports from the command line, see the .

The following sections describe the default reports and report templates, instructions on how to modify existing reports, and how to create your own reports.

This section contains the following topics:

- Generating legacy issue reports
- Legacy report templates

3.11.2.1. Generating legacy issue reports

After you select the report template and report settings, you generate the report to view the results. You can save report results as PDF and XML files.

To generate a legacy issue report:

1. From the Fortify extension menu, select **Generate Legacy Report**.
2. From the **Report** list, select a report template.
3. (Optional) Change the report section settings.
4. Click **Print Report**.
5. Specify a file name and a location to save the report.
6. Select the report file format (PDF or XML).
7. Click **Save**.

The generates the report in the format you selected.

3.11.2.2. Legacy report templates

This section describes how to select and edit a legacy report template. You can modify legacy report templates from the Generate Legacy Report dialog box, or you can edit report templates directly in XML (see Editing Legacy Report Template XML Files). If you or another user have edited or created additional legacy report templates, you might not see the default report templates described in this section.

The legacy report templates include:

- **Fortify Security Report**—A mid-level report that provides comprehensive information about the analysis performed and the high-level details of the audit that was performed. It also provides a high-level description and examples of

categories that are of the highest priority.

- **Fortify Developer Workbook**—Provides a comprehensive list of all categories of issues found and multiple examples of each issue. It also gives a high-level summary of the number of issues in each category.
- **OWASP Top Ten *<year>***—Provides high-level summaries of uncovered vulnerabilities organized based on the top ten issues that the Open Web Security Project (OWASP) has identified.
- **Fortify Scan Summary**—Provides high-level information based on the category of issues that found as well as a project summary and a detailed project summary

The following sections describe how to view report templates and customize them to address your reporting needs.

3.11.2.2.1. Opening legacy report templates

To open a report template:

1. From the Fortify extension menu, select **Generate Legacy Report**.
2. Select a report template from the **Report** list.

The Generate Legacy Report dialog box displays the report template settings.

3.11.2.2.2. Selecting legacy report sections

You can choose which sections to include in the report.

To select the sections to include in a report:

1. Click a section title to view the contents of the section.
   The section details display in the right side of the dialog box.
2. To include a section in the report, select the section title check box in the list in the left pane.
3. To remove a section from the report, clear the check box next to the section title.

For details on how to edit each section, see Editing Legacy Report Subsections.

3.11.2.2.3. Editing legacy report subsections

When you select a section title, you can edit the contents that display in the report. You can edit text, add or change text variables, or customize the issues shown in a chart or results list.

Editing text subsections

To edit a text subsection:

1. Select the check box next to the subsection title to include this text in the report.
   A description of the text is displayed below the subsection title.
2. Click **Edit**.
   The text box displays the text and variables to include in the report.
3. Edit the text and text variables.

As you edit text subsections, you can insert variables that are defined when you run the report. The following table describes these variables.

Variable	Description
$AUDIT_GUIDE_SUMMARY$	List of filters created with answers to Audit Guide Wizard questions
$CLASSPATH_LISTING$	JAR files used in the scan, one relative path per line
$COMMANDLINE_ARGS$	Complete list of command-line options (same format as project summary)
$FILE_LISTING$	List of files scanned, each file in the following format: `<relative_file_path> # Lines # kb <timestamp>`
$FILTERSET_DETAILS$	List of filters used by the current filter set
$FILTERSET_NAME$	Name of the current filter set
$FORTIFY_SCA_VERSION$	version
$LIBDIR_LISTING$	Libdirs specified during scan, one relative path per line
$TLOC$	Total lines of code
$NUMBER_OF_FILES$	Total number of files scanned
$PROJECT_BUILD_LABEL$	Build label of project
$PROJECT_NAME$	Build ID
$PROPERTIES$	Complete list of properties set during analysis phase (same format as project summary)
$RESULTS_CERTIFICATION$	Complete certification detail with list of validity on a per file basis (same format as project summary)
$RESULTS_CERTIFICATION_SUMMARY$	Short certification description (same format as project summary)
$RULEPACKS$	Complete list of Rulepacks used during the analysis (same format as project summary)
RUN_INFO	Content from the **Project Summary Runtime Information** tab

Variable	Description
$SCAN_COMPUTER_ID$	Hostname of the machine on which the scan was performed
$SCAN_DATE$	Date of the analysis with the default formatting style for the locale
$SCAN_SUMMARY$	Summary of the codebase scanned in the format: `# files, # lines of code`
$SCAN_TIME$	Time of the analysis phase
$SCAN_USER$	User name of the user who performed the scan
$SOURCE_BASE_PATH$	Source base path of the codebase
$TOTAL_FINDINGS$	Number of issues, excluding suppressed or removed issues
$VERSION_LABEL$	Label of the scanned project (available only if the `-build-label` option was used in the scan)
$WARNINGS$	Complete list of warnings issued (same format as project summary)
$WARNING_SUMMARY$	Number of warnings found in the scan

Editing results list subsections

To edit a result list subsection:

1. Select the check box next to the subsection title to include this text in the report.
   A description of the results list is displayed below the subsection title.
2. Click the issues list heading to expand the options.
3. Select the attributes used to group the results list.
   If you group by category, the recommendations, abstract, and explanation for the category are also included in the report.
4. (Optional) Refine the issues shown in this subsection with a search query.
   For more details about the search syntax, see Searching for Issues.

Editing chart subsections

To edit a chart subsection:

1. Select the check box next to the subsection title to include this text in the report.
   A chart description is displayed below the subsection title.
2. Select the attributes used to group the chart data.
3. (Optional) Refine the issues shown in this subsection with a search query.
   For information about search syntax, see Searching for Issues.
4. Select the chart format (table, pie, or bar).

3.11.2.2.4. Saving legacy report templates

You can save the current report settings as a new template that you can select later to run more reports.

To save settings as a report template:

1. From the Fortify extension menu, select **Generate Legacy Report**.
2. From the **Report** list, select a report template.
3. Make changes to the report section and subsection settings.
4. Click **Save as New Template**.

When you select the report template name from the **Report** list, the report settings are displayed in the Generate Legacy Report dialog box.

3.11.2.2.5. Saving changes to legacy report templates

You can save changes to a report template so that your new settings are displayed as the default settings for that template.

To save changes to a report template:

1. From the Fortify extension menu, select **Generate Legacy Report**.
2. From the **Report** list, select the report template to save as the default report template.
3. (Optional) Make changes to the report section and subsection settings.
4. Click **Save Settings as Default**.

3.11.2.2.6. Legacy report template XML files

Report templates are saved as XML files. You can edit the XML files to make changes or to create new report template files. When you edit the XML files, you can choose the sections and the contents of each section to include in the report template.

The default location for the report template XML files is `<tools_install_dir>\Core\config\reports`.

To customize the logos used in the reports, you can replace `header.jpg` and `footer.jpg` in this folder.

3.11.2.2.7. Adding legacy report sections

You can add report sections by editing the XML files. In the structure of the XML, the `ReportSection` element defines a new section. It includes a `Title` element for the section name, and it must include at least one `Subsection` element to define the section contents in the report. The following XML is the `Results Outline` section of the Fortify Security Report (`DefaultReportDefinition.xml`):

```
    <ReportSection enabled="true" optionalSubsections="true">
  <Title>Results Outline</Title>
  <SubSection enabled="true">
    <Title>Overall number of results</Title>
    <Description>Results count</Description>
    <Text>The scan found $TOTAL_FINDINGS$ issues.</Text>
  </SubSection>
  <SubSection enabled="true">
    <Title>Vulnerability Examples by Category</Title>
    <Description>Results summary for critical and high priority issues.
      Vulnerability examples are provided by category.
    </Description>
    <IssueListing limit="1" listing="true">
      <Refinement>[fortify priority order]:critical OR
        [fortify priority order]:high</Refinement>
      <Chart chartType="list">
        <Axis>Category</Axis>
      </Chart>
    </IssueListing>
  </SubSection>
</ReportSection>
```

In this example, the `Results Outline` section contains two subsections. The first is a text subsection titled `Overall number of results`. The second subsection is a results list titled `Vulnerability Examples by Category`. A section can contain multiple subsections.

3.11.2.2.8. Adding report subsections

In the report sections, you can add subsections or edit subsection content. Subsections can generate text, results lists, or charts.

Adding text subsections

In a text subsection, you can include the `Title` element, the `Description` element, and the `Text` element. In the `Text` element, you can provide the default content although the user can edit the content before generating a report. For a description of the text variables available to use in text subsections, see Editing Legacy Report Subsections. The following XML is the `Overall number of results` subsection in the `Results Outline` section:

```
    <SubSection enabled="true">
  <Title>Overall number of results</Title>
  <Description>Results count</Description>
  <Text>The scan found $TOTAL_FINDINGS$ issues.</Text>
</SubSection>
```

In this example, the text subsection is titled `Overall number of results`. The text that describes the purpose of the text is `Results count`. The text in the text field that the user can edit before running a report uses one variable named `$TOTAL_FINDINGS$`.

Adding results list subsections

In a results list subsection, you can include the `Title` element, the `Description` element, and the `IssueListing` element. In the `IssueListing` element, you can define the default content for the limit and set `listing` to `true`. You can include the `Refinement` element either with or without a default statement although the user can edit the content before they generate a report. To generate a results list, the `Chart` element's attribute `chartType` is set to `list`. You can also include the `Axis` element. The following XML is the `Vulnerability Examples by Category` subsection in the `Results Outline` section:

```
    <SubSection enabled="true">
    <Title>Vulnerability Examples by Category</Title>
    <Description>Results summary for critical and high priority issues.
      Vulnerability examples are provided by category.
    </Description>
    <IssueListing limit="1" listing="true">
      <Refinement>[fortify priority order]:critical OR
        [fortify priority order]:high</Refinement>
      <Chart chartType="list">
        <Axis>Category</Axis>
      </Chart>
    </IssueListing>
  </SubSection>
```

In this example, the results list subsection title is `Vulnerability Examples by Category`. The text `Results summary for critical and high priority issues. Vulnerability examples are provided by category.` is used to describe the purpose of the subsection. This subsection lists (`listing=true`) one issue (`limit="1"`) per category (the value of the `Axis` element) where there are issues matching the statement `[fortify priority order]:critical OR [fortify priority order]:high` (the value of the `Refinement` element).

Adding chart subsections

In a chart subsection, you can include the `Title` element, the `Description` element, and the `IssueListing` element. In the `IssueListing` element, you can define the default content for the limit and set `listing` to `false`. You can include the `Refinement` element either with or without a default statement although the user can edit the content before generating a report. To generate a pie chart, set the `Chart` element's attribute `chartType` to `pie`. The options are `table`, `pie`, and `bar`. The user can change this setting before generating the report. You can also define the `Axis` element.

The following code shows an example of a chart subsection:

```
    <SubSection enabled="true">
  <Title>New Issues</Title>
  <Description>A list of issues discovered since the previous
   analysis.</Description>
  <Text>The following issues have been discovered since the
   last scan:</Text>
  <IssueListing limit="-1" listing="false">
    <Refinement />
    <Chart chartType="pie">
      <Axis>New Issue</Axis>
    </Chart>
  </IssueListing>
</SubSection>
```

In this subsection, a chart (`limit="-1" listing="false"`) has the title `New Issues` and a text section that contains `The following issues have been discovered since the last scan:` . This chart includes all issues (the `Refinement` element is empty) and groups the issues based on the value of `New Issue` (the value of the `Axis` element). The subsection includes a pie chart (`chartType="pie"`).

3.12. Working with audit projects

This section provides information about how to open an audit project, migrate audit data, merge audit data, audit projects collaboratively, and upload audit results to .

This section contains the following topics:

- Opening audit projects
- Configuring the default filter set for auditing
- About merging audit data
- Merging audit data
- Performing a collaborative audit
- Uploading results to Application Security

3.12.1. Opening audit projects

To open an audit project file:

1. Open a solution or project.
2. From the Fortify extension menu, select **Open Audit Project**.
3. Browse to and select an audit project file (FPR, FVDL, or XML).
4. Click **Open**.
5. If the source code is not available in the FPR, you are prompted to select the root directory for your project's source code. Select the root folder, and then click **OK**.

The displays the project in the auditing interface.

3.12.2. Configuring the default filter set for auditing

You can specify a default filter set to use with an audit project. uses this filter set every time you audit the project. The filter set must exist in the project template. Otherwise, the default filter set available in the audit project's template is used.

To configure a default filter set for an audit project:

1. From the Fortify extension menu, select **Options**.
2. In the left pane, select **Project Configuration**.
3. Select the **Audit Options** tab.
   The **Audit Options** tab is only visible if you have an audit project open.

4. Specify the scope of the configuration by doing one of the following:
    - To configure the settings for the projects in the open solution only, select the **Enable Project Specific Settings** check box.
    - To change the default audit configuration for all projects scanned from this Visual Studio instance, click **Configure Defaults**.
5. Make sure that **Override default filter set on start with** is selected, and then select a filter set from the list.

Creating a Filter Set

Managing Folders

3.12.3. About merging audit data

You can merge audit data into your project from another file. Audit data includes the custom tags and comments that were added to an issue. Comments are merged into a chronological list, while the custom tag values are updated.

> **Note**
> Issues are not merged. Only the newer scanned issues are shown. Issues in the older file that are not in the newer file are marked as removed.

Make sure that the projects you merge contain the same analysis information, that the scan was on the same source code (no missing libraries or files), the options were the same, and the scan was performed with the same set of and custom Rulepacks.

3.12.4. Merging audit data

To merge audit projects:

1. Open an audit project in Visual Studio.
2. From the Fortify extension menu, select **Merge Audit Projects**.
   The Select Audit Project dialog box opens.
3. Select an audit project (FPR, FVDL, or XML file), and then click **Open**.
   The audit projects are merged.
4. To confirm the number of issues added or removed from the file, click **OK**.

> **Note**
> If the scan is identical, the process does not add or remove issues.

The audit project now contains all audit data from both files.

3.12.5. Performing a collaborative audit

You can audit a project in collaboratively with other users.

To start a collaborative audit:

1. If necessary, configure a connection to :
    1. From the Fortify extension menu, select **Options**.
    2. In the left pane, select **Server Configuration**.
    3. Under **Software Security Center**, specify the **Server URL** for Fortify Software Security Center.

       > **Tip**
       > Click **Test Connection** to confirm that the URL is valid, and you can successfully connect to the Fortify Software Security Center server.

    4. Click **OK**.
2. If you already have an audit project open, close it.

3. From the Fortify extension menu, select **Open Collaborative Audit**.
4. If prompted, type your login credentials.
   For information about logging into , see Logging in to .
5. In the Download Collaborative Audit dialog box, select an application version, and then click **Select**.
   The downloads the audit project file from and opens it in the auditing interface.
6. Audit the project as described in Auditing Issues.
7. When you complete the audit, select **Upload Audit Project** from the Fortify extension menu.

> **Note**
>
> If necessary, update your audit permission settings from by selecting **Refresh Permissions** from the Fortify extension menu.

3.12.6. Uploading results to Application Security

You can manually upload analysis results to any time after a scan is completed. However, before you do, a corresponding application version must already exist in .

> **Important**
>
> If uses an SSL connection from an internal certificate authority or a self-signed certificate, you must import the certificate into the local Windows certificate store.

> **Note**
>
> By default, Fortify Software Security Center ignores uploaded scans performed in quick scan mode. However, you can configure your Fortify Software Security Center application version so that it processes uploaded audit projects scanned in quick scan mode. For more information, see the analysis results processing rules in the .

To upload results to :

1. If necessary, configure a connection to :
   1. From the Fortify extension menu, select **Options**.
   2. In the left pane, select **Server Configuration**.
   3. Under **Software Security Center**, specify the **Server URL** for Fortify Software Security Center.

      > **Tip**
      >
      > Click **Test Connection** to confirm that the URL is valid, and you can successfully connect to the Fortify Software Security Center server.

   4. Click **OK**.
2. From the Fortify extension menu, select **Upload Audit Project**.
3. If prompted, type your credentials.
   For information about logging into , see Logging in to .
   The Upload Audit Project dialog box lists the current applications.
4. Select an application version, and then click **Select**.

   > **Note**
   >
   > If you are working on a collaborative audit for an application you just downloaded, then the audit project is automatically uploaded to the same application version. You are not prompted to select an application.

3.13. Integrating with a bug tracker application

The provides a plugin interface to integrate with bug tracker applications. This enables you to file bugs directly from the . For a list of supported bug tracker applications, see the document.

- Filing bugs to Azure DevOps server

3.13.1. Filing bugs to Azure DevOps server

The supports integration with bug tracker applications so that you can file bugs directly to Azure DevOps Server. For a list of supported versions, see the document.

To file a bug to Azure DevOps Server:

1. Open an audit project in Visual Studio.
2. In the Analysis Results window, select an issue.
3. In the Issue Auditing window, select the **Audit** tab, and then click **File Bug**.
4. If this is the first time you have filed a bug, the Select Bug Tracker Integration dialog box opens. Do the following:
    1. Select **Azure DevOps Server**, and then click **Select**.
    2. Click **Servers**, and then click **Add**.
    3. In the Add Azure DevOps Server dialog box, provide the necessary information, and then click **OK**.
    4. Click **Close** to close the Add/Remove DevOps Server dialog box.
    5. In the Connect to Azure DevOps Server dialog box, select a server, a Team Project Collection, and a Team Project, and then click **Connect**.
5. Specify the following information for your installation:
   Project: <*team_project_name*>
   WorkItem Type: **Bug**
6. Click **OK**.
7. (Optional) In the Azure DevOps Server dialog box, provide the information to file the bug report.
8. Click **File Bug**.

3.14. Troubleshooting

The following topics provide information about how to troubleshoot problems you might encounter working with the .

This section contains the following topics:

- Enabling debug mode
- Locating the log files

3.14.1. Enabling debug mode

If you encounter any errors, you can enable debug mode to help troubleshoot. When you enable debug mode, writes additional information to the log files.

To enable debug mode:

1. Navigate to the `<tools_install_dir>\Core\config` folder and open the `fortify.properties` file in a text editor.
2. You can either enable debug mode for all components or for specific components. Remove the comment tag (#) from in front of the property and set the value to `true`.

Property	Description
`#com.fortify.Debug=false`	If set to `true`, all the components run in debug mode.
`#com.fortify.VS.Debug=false`	If set to `true`, the runs in debug mode.

3.14.2. Locating the log files

To get help with diagnosing an issue, send the log files to . On Windows systems, the log files are in the following folders:

- `C:\Users\<username>\AppData\Local\Fortify\VS<VSversion>-<version>\log`
- `C:\Users\<username>\AppData\Local\Fortify\sca<version>\log`
  The log files in this folder are only available if you analyze the code locally with .
- `C:\Users\<username>\AppData\Local\Fortify\scancentral-<version>\log`
  The log files in this folder are only available if you analyze the code with .

4. Remediating results from Application Security

You can download audit results for your code from so that you can resolve security-related issues in Visual Studio.

- Requirements for remediating results
- Opening Application Security application
- Viewing analysis results from Application Security
- Viewing issue information
- Locating issues in source code
- Auditing analysis results

4.1. Requirements for remediating results

To remediate results from , you must have the following:

- A URL
- If your server uses an SSL connection from an internal certificate authority or a self-signed certificate, you must import the Fortify Software Security Center certificate into the local Windows certificate store.
- A user account on the server that has permission to access application versions
  To log into , you can use a user name and password or an authentication token.
- To audit issues in the analysis results, your user account must have audit permission.
  In addition to audit permissions, the following audit tasks require additional permissions:
  - To add comments to issues or assign values to custom tags that require comments, your user account must have the permission to comment on issues.
  - To override issue priority, your user account must have the permission to edit restricted custom tag values.



Note

You do not need to specify a Fortify license file for the . Only requires a license file.

4.2. Opening Application Security application

To open an application version in the :

1. If you have not already done so, configure a connection to a server:
   1. From the Fortify extension menu, select **Options**.
   2. In the left pane, select **Server Configuration**.
   3. Under **Software Security Center**, specify the **Server URL** for Fortify Software Security Center.

      Tip

      Click **Test Connection** to confirm that the URL is valid, and you can successfully connect to the Fortify Software Security Center server.
   4. Click **OK**.
2. From the Fortify extension menu, select **Connect to SSC**.
3. If prompted, type your login credentials.

For information about logging into , see Logging in to .

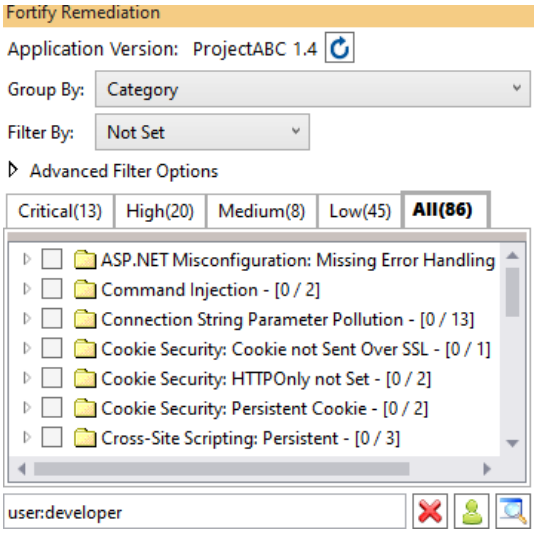
4. In the Select Application Version dialog box, select an application version to open, and then click **OK**.

The downloads the for the application version from .

> **Note**
>
> To open a different application version in , reselect **Fortify > Connect to SSC** from the Fortify extension menu.

4.3. Viewing analysis results from Application Security

After you open an application version, you can see the in the . This window displays all security issues, organized in folders (color-coded tabs) in an issue list.



Folders contain logically defined sets of issues. For example, the **Critical** folder contains all critical issues for an application. Similarly, the **Low** folder contains all low-priority issues.

Filters determine which issues are visible. The filters are organized into distinct groups called filter sets. An issue template can contain definitions for multiple filter sets. You can use multiple filter sets to change the sorting and visibility of issues.

To remediate issues, the project you have open in Visual Studio must correspond to the application version you opened in (see Opening a Application).

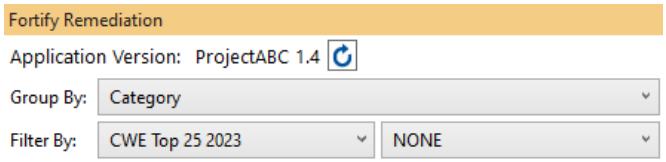
This section contains the following topics:

- Viewing and selecting issues
- Grouping issues
- Customizing issue visibility
- Searching for issues

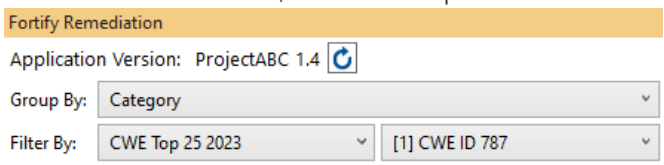
4.3.1. Viewing and selecting issues

To view and select issues in an opened application version:

1. From the **Group By** list, select an attribute for sorting issues in all visible folders into groups.
   The default grouping is **Category**. For a description of the available **Group By** attributes, see Grouping Issues.
2. To filter the issues within the selected grouping:
   1. From the **Filter By** list, select a filter category.



2. To refine the issues further, select a filter option from the list to the right of the selected filter category.



3. By default, issues assigned to your user name are visible. To see issues assigned to all users, click the **Clear** button .

   To see issues assigned to a specific user, do the following:

   1. Click the **Select User** button .
   2. In the Select User dialog, select a user name, and then click **OK**.

   Only issues assigned to the selected user are shown in the .

> **Tip**
> To see only issues assigned to you, from the **Filter By** list, select **Assignments** and **My Assignments**.

4. Click a folder (tab) to view the associated issues.

> **Note**
> The folders shown depends on your **Group By**, **Filter By**, **Assigned User**, and **Filter Set** selections. It is possible that not all folders are shown. The folders shown also depends on the issue template associated with the application version.

   The following table describes the folders that are visible when the **Security Auditor View** filter set is selected.

Folder	Description
Critical	This folder contains issues that have a high impact and a high likelihood of occurring. Issues at this risk level are easy to discover and to exploit and represent the highest security risk to a program. Remediate critical issues immediately.
High	This folder contains issues that have a high impact and a low likelihood of occurring. High-priority issues are often difficult to discover and exploit but can result in much asset damage. They represent a significant security risk to a program. Remediate these issues with the next patch release.
Medium	This folder contains issues that have a low impact and a high likelihood of exploitation. Medium-priority issues are easy to discover and exploit but often result in little asset damage. These issues represent a moderate security risk to a program. Remediate these issues as time permits.
Low	This folder contains issues that have a low impact and a low likelihood of exploitation. Low-priority issues are potentially difficult to discover and to exploit and typically result in little asset damage. These issues represent a minor security risk to the program. Remediate these issues as time permits.
All	This folder contains all the issues.

Within each color-coded folder, issues are grouped into subfolders. At the end of each folder name, enclosed in brackets, is the number of audited issues and the total number of issues in the folder. For example, a folder with the name **Command Injection - [1 / 3]** indicates that one issue out of three categorized as Command Injection has been audited.

5. Expand the **Advanced Filter Options** section to access the filter set and issue visibility settings.
6. From the **Filter Set** list, select a filter to apply:
    - Select **Security Auditor View** to list all issues relevant to a security auditor.
    - Select **Quick View** to list only issues in the **Critical** folder (these have a potentially high impact and a high likelihood of occurring) and the **High** folder (these have a potentially high impact and a low likelihood of occurring).



Note

You might see different filter sets depending on the filter sets associated with the application you opened.

7. Click to expand a folder and view the associated issues.
   The retrieves the corresponding issues from .
8. Click an issue name to view the issue information.



Note

Selecting the check box for an issue opens the **Bulk Audit** tab where you can add audit information for multiple issues.

Grouping Issues

Searching for Issues

4.3.2. Grouping issues

The items visible in the issues list vary depending on the selected grouping attribute. The attribute you select from the **Group By** list sorts issues in all visible folders into subfolders. Use the **Group By** attributes to group and view the issues in different ways. The following table describes the available **Group By** attributes.

Attribute	Description
Analysis	Groups issues by the audit analysis value assigned, such as Suspicious, Exploitable, and Not an Issue.
Analysis Type	Groups issues by analyzer product, such as SCA, WEBINSPECT, and SECURITYSCOPE (WebInspect Agent).
Analyzer	Groups issues by analyzer group, such as Control Flow, Data Flow, Semantic, and Structural.
App Defender Protected	Groups issues by whether Application Defender can protect the vulnerability category.
Category	Groups issues by vulnerability category. This is the default setting.
<*custom_tagname*>	Groups issues by the selected custom tag.
Engine Priority	Groups issues based on the original priority value determined by the engine that identified the issue.
File Name	Groups issues by file name.
Folder	Groups issues by folders defined in the issue template.
Fortify Priority Order	Groups issues as Critical, High, Medium, and Low based on issue priority.
Introduced date	Groups issues by the date the issue was first detected.
Issue State	Groups audited issues by whether the issue is an open issue or not an issue based on the level of analysis set for the primary tag. Values equivalent to suspicious and exploitable are considered open issue states.
Kingdom	Groups issues by the Seven Pernicious Kingdoms classification.
Manual	Groups issues by whether they were manually created by penetration test tools, and not automatically produced by a web crawler such as .
<*metadata_listname*>	Groups issues using the alternative metadata external list names (for example, OWASP Top 10 <*year*>, CWE, PCI SSF <*version*>, STIG <*version*>, and others).
New Issue	Shows which issues are new since the last scan. For example, if you run a new scan, any issues that are new display in the tree under the **NEW** group and the others are displayed in the **UPDATED** group. If removed issues are visible, issues not found in the latest scan are displayed in the **REMOVED** list.

Attribute	Description
Package	Groups issues by package or namespace. Does not appear for projects for which this option is not applicable, such as C projects.
Primary Context	Groups issues where the primary location or sink node function call occurs in the same code context.
Priority Override	Groups issues by the Priority Override tag value assigned.
Sink	Groups issues that share the same dataflow sink functions.
Source	Groups issues that share the same dataflow source functions.
Source Context	Groups dataflow issues that have the source function call contained in the same code context.
Source File	Groups dataflow issues by the source code file where the taint originated.
Status	Groups issues by the audit status (**Reviewed**, **Unreviewed**, or **Under Review**).
Taint Flag	Groups issues by the taint flags that they contain.
URL	Groups dynamic issues by the request URL.

4.3.3. Customizing issue visibility

You can customize the to determine which issues it displays.

To customize the display of hidden, removed, and suppressed issues:

1. In the , expand the **Advanced Filter Options** section.
2. Select or clear the following options:
    - To display all hidden issues, select **Show Hidden**.

      Note

      The visibility filter settings in the issue template associated with the application version determine which issues are hidden.

    - To display all issues that were detected in the previous analysis, but no longer exist, select **Show Removed**.
    - To display all suppressed issues, select **Show Suppressed**.

      Note

      Users who audit issues can suppress specific types of issues that are not considered high priority or of immediate concern. For example, auditors can suppress issues that are fixed, or issues that your organization plans not to fix.

The displays issues based on your selection.

Note

You can also specify the issue visibility settings from the Options dialog box (from the Fortify extension menu, select **Options**, and then select **Remediation Configuration** in the left pane).

4.3.4. Searching for issues

In the , you can use the search box located below the issues list to search for issues.

To perform a search, type a search query in the search box, and then press **Enter**.



The displays the search results.

Search Syntax

Search Modifiers

4.3.4.1. Search syntax

To indicate the type of comparison to perform for a search in the , wrap the search terms with delimiters. The following table shows the syntax to use for the search string.

Comparison	Description
contains	Searches for a term without any qualifying delimiters
equals	Searches for an exact match if the term is wrapped in quotation marks (`""`)
number range	Searches for a range of numbers using the standard mathematical interval notation of parentheses and/or brackets to indicate whether the endpoints are excluded or included, respectively. Example: (2,4] indicates greater than two and less than or equal to four
not equals	Excludes issues specified by the string by preceding the string with an exclamation character (!) Example, `file:!Main.java` returns all issues that are not in `Main.java` .

You can further qualify search terms with modifiers. The syntax for using a modifier is `<modifier>:<search_term>` . For more information, see Search Modifiers.

A search string can contain multiple modifiers and search terms. If you specify more than one modifier, the search returns only issues that match all the modified search terms. For example, `file:ApplicationContext.java category:SQL Injection` returns only SQL injection issues found in `ApplicationContext.java` .

If you use the same modifier more than once in a search string, then the search terms qualified by those modifiers are treated as an `OR` comparison. For example, `file:ApplicationContext.java category:SQL Injection category:Cross-Site Scripting` returns SQL injection issues and cross-site scripting issues found in `ApplicationContext.java` .

For complex searches, you can also insert the AND or the OR keyword between your search queries. Note that AND and OR operations have the same priority in searches.

4.3.4.2. Search modifiers

You can use a search modifier to specify to which issue attribute the search term applies. To use a modifier that contains a space in the name, such as the name of the custom tag, you must enclose the modifier in brackets. For example, to search for issues that are new, type `[issue age]:new`.

A search that is not qualified by a modifier matches the search string on the following attributes: kingdom, primary rule id, analyzer, filename, severity, class name, function name, instance id, package, confidence, type, subtype, taint flags, category, sink, and source.

The following examples describe using the search with and without applying a search modifier:

- To apply the search to all modifiers, type a string, such as `control flow`. This searches all the modifiers and returns any results that contain the "control flow" string.
- To apply the search to a specific modifier, type the modifier name and the string as follows: `analyzer:control flow`. This returns all results detected by the Control Flow Analyzer.

The following table describes the search modifiers. A few modifiers have a shortened modifier name indicated in parentheses. You can use either modifier name.

Search Modifier (Issue Attribute)	Description
accuracy	Searches for issues based on the accuracy value specified (0.1 through 5.0).
analysis	Searches for issues that have the specified audit analysis value such as exploitable, not an issue, and so on.
[analysis type]	Searches for issues by analyzer product such as SCA and WEBINSPECT.
analyzer	Searches the issues for the specified analyzer such as control flow, data flow, structural, and so on.
[app defender protected] (def)	Searches for issues based on whether Application Defender can protect the vulnerability category (protected or not protected).
audience	Searches for issues based on intended audience such as dev, targeted, medium, broad, and so on. **Note** This metadata is legacy information that is no longer used and will be removed in a future release. recommends that you do not use this search modifier.
audited	Searches the issues to find true if the primary tag is set and false if the primary tag is not set. The default primary tag is the Analysis tag.
category (cat)	Searches for the given category or category substring.
class	Searches for issues based on the specified class name.
comments (comment, com)	Searches the comments submitted on the issue.
commentuser	Searches for issues with comments from a specified user.
confidence (con)	Searches for issues that have the specified confidence value. calculates the confidence value based on the number of assumptions made in code analysis. The more assumptions made, the lower the confidence value.

Search Modifier (Issue Attribute)	Description
`<custom_tagname>`	Searches for issues based on the value of the specified custom tag. You can search a list-type custom tag using a range of values. The values of a list-type custom tag are an enumerated list where the first value is 0, the second is 1, and so on. You can use the search syntax for a range of numbers to search for ranges of list-type custom tag values. For example, `analysis:[0,2]` returns the issues that have the values of the first three Analysis values, 0, 1, and 2 (Not an Issue, Reliability Issue, and Bad Practice). To search for a specific date in a date-type custom tag, specify the date in the format: yyyy-mm-dd. To search for issues that have no value set for a custom tag, use `<none>` as the search term. For example, to search for all issues that have no value set in the custom tag labeled Target Date, type: `[Target Date]:<none>`.
`dynamic`	Searches for issues that have the specified dynamic hot spot ranking value.
`[engine priority]`	Searches for issues based on the original priority value determined by the engine that identified the issue.
`file`	Searches for issues where the primary location or sink node function call occurs in the specified file path.
`[fortify priority order]`	Searches for issues that have a priority level that matches the specified issue priority. Valid values are `critical`, `high`, `medium`, and `low`.
`historyuser`	Searches for issues that have audit data modified by the specified user.
`impact`	Searches for issues based on the impact value specified (0.1 through 5.0).
`[instance id]`	Searches for an issue based on the specified instance ID.
`[issue age]`	Searches for the issue age, which is `new`, `updated`, `reintroduced`, or `removed`.
`[issue state]`	Searches for audited issues based on whether the issue is an open issue or not an issue (determined by the level of analysis set for the primary tag).
`kingdom`	Searches for all issues in the specified kingdom.

Search Modifier (Issue Attribute)	Description
likelihood	Searches for issues based on the specified likelihood value (0.1 through 5.0).
line	Searches for issues on the primary location line number. For dataflow issues, the value is the sink line number. Also see sourceline.
maxconf	Searches for all issues that have a confidence value up to and including the number specified as the search term.
minconf	Searches for all issues that have a confidence greater than or equal to the specified value.
<metadata_listname>	Searches for issues based on the value of the specified metadata external list. Metadata external lists include [owasp top ten <*year*>], [cwe top 25 <*version*>], [pci ssf <*version*>], [stig <*version*>], and others.
package	Searches for issues where the primary location occurs in the specified package or namespace. (For dataflow issues, the primary location is the sink function.)
[primary context]	Searches for issues where the primary location or sink node function call occurs in the specified code context. Also see sink and [source context].
primary	Searches for issues that have the specified primary tag value. By default, the primary tag is the Analysis tag.
primaryrule (rule)	Searches for all issues related to the specified sink rule.
[priority override]	Searches for all issues that have the specified Priority Override tag value. Valid values are critical, high, medium, and low.
probability	Searches for issues based on the probability value specified (1.0 through 5.0).
[remediation effort]	Searches for issues based on the remediation effort value specified. The valid values are whole numbers from 1.0 to 12.0.
severity (sev)	Searches for issues based on the specified severity value (legacy metadata).
sink	Searches for issues that have the specified sink function name. Also see [primary context].

Search Modifier (Issue Attribute)	Description
source	Searches for dataflow issues that have the specified source function name. Also see [source context].
[source context]	Searches for dataflow issues that have the source function call contained in the specified code context. Also see source and [primary context].
sourcefile	Searches for dataflow issues with the source function call that the specified file contains. Also see file.
sourceline	Searches for dataflow issues having taint source entering the flow on the specified line. Also see line.
status	Searches issues that have the status reviewed, unreviewed, or under review.
suppressed	Searches for suppressed issues.
taint	Searches for issues that have the specified taint flag.
url	Searches for issues based on the specified URL.
user	Searches for issues assigned to the specified user.

4.4. Viewing issue information

After you select an issue, the displays the issue-specific content on the **Audit**, **Recommendations**, **Details**, and **History** tabs. If you select multiple issues, displays the **Bulk Audit** tab (see Auditing Multiple Issues).

- Audit Tab
- Recommendations Tab
- Details Tab
- History Tab

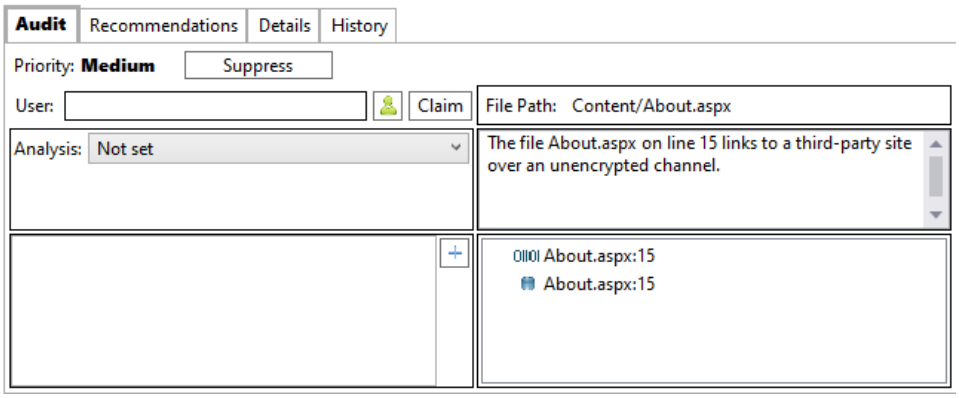
4.4.1. Audit Tab

The **Audit** tab provides a dashboard of analysis information for the selected issue.



Note

Any changes you make on the **Audit** tab are automatically uploaded to the application version in .



The following table describes the **Audit** tab features.

Element	Description
User	The user assigned to the selected issue. If the box is empty, no user is assigned to the selected issue. To assign a user to the issue, see Auditing .
Analysis	Your assessment for the selected issue. To change the assessment, select an item from the list. This is the primary tag as defined in . The default name of this tag is **Analysis**, but it might be different for your organization.
<custom_tagname>	Any custom tags your organization has defined in . If available, these are displayed below the **Analysis** (primary) tag. If the audit results have been submitted to in , then in addition to any other custom tags, the tab displays the following tags: • **AA_Prediction**—Exploitability level that assigned to the issue. You cannot modify this tag value. • **AA_Confidence**—Confidence level from for the accuracy of its AA_Prediction value. You cannot modify this tag value. • **AA_Training**—Whether to include or exclude the issue from training. You can modify this value. For more information about , see the .
Comments (bottom left)	Any additional information added to the issue. For instructions on how to add comments, see Auditing .
File Path (top right)	The path to the location of the source file for the selected issue.
Issue Abstract (below File Path)	A summary of the selected issue.
Analysis Trace (bottom right)	The items of evidence that the analyzer uncovered. The analysis trace is presented in the order it was discovered. For information about the Analysis Trace icons, see Analysis Evidence Window.

Auditing

Auditing Multiple Issues

4.4.2. Recommendations Tab

The **Recommendations** tab provides suggestions and examples that show how to secure a vulnerability or remedy a bad practice. The following table describes the tab sections.

Section	Description
Recommendations/Custom Recommendations	Describes possible solutions for the selected issue. It can also include examples and recommendations defined by your organization.
Tips/Custom Tips	Provides useful information specific to the selected issue, and any custom tips defined by your organization.
References/Custom References	Lists references for the recommendations provided, including any custom references defined by your organization.

4.4.3. Details Tab

The **Details** tab provides an abstract of the selected issue description. It might also provide more detailed explanations, including examples with descriptive text and code samples. The following table describes the tab sections.

Section	Description
Abstract/Custom Abstract	Displays a summary description of the selected issue, including custom abstracts defined by your organization.
Explanation/Custom Explanation	Displays a description of the conditions under which an issue of the selected type occurs. This includes a discussion of the vulnerability, the constructs typically associated with it, ways in which attackers can exploit it, and the potential ramifications of an attack. This section also provides custom explanations defined by your organization.
Instance ID	A unique identifier for the issue.
Primary Rule ID	The identifier for the primary rule that found the issue.
Priority Metadata Values	Priority metadata values for an issue.
Legacy Priority Metadata Values	Legacy priority metadata values for an issue.

4.4.4. History Tab

The **History** tab displays a history of audit actions, including details such as the time and date, and the name of the user who modified the issue.

4.5. Locating issues in source code

Because the works as an extension to your Visual Studio IDE, you can use it to locate security-related issues in your code. Make sure that the revision of the source code open in Visual Studio corresponds to the application version you opened on Fortify Software Security Center.

To locate an issue in the source code, do either of the following:

- From a folder in the , select an issue.
- From the **Audit** tab, select a step from the Analysis Trace.

The jumps to the line of code that contains the security-related issue in Visual Studio.

4.6. Auditing analysis results

After you select and review an issue, you can assign audit information on the **Audit** tab. To audit multiple selected issues in batch, see Auditing Multiple Issues. To see any updates to the audit information made in , click the **Refresh** button .

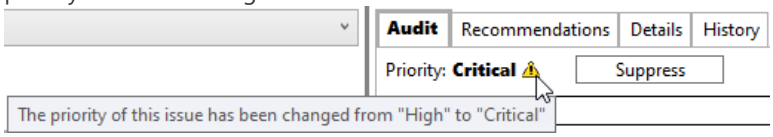
To audit an issue:

1. From a folder in the , click an issue.
2. To assign a user to the issue, do one of the following:
   - Click the **Assign Issue to User** button , select a user name from the Select User dialog box, and then click **OK**.
   - Click **Claim** to assign the issue to yourself.

   To remove an assigned user, click the **Unassign Issue** button .
3. From the **Analysis** list, select a value that reflects your assessment of this issue.
   This is the primary tag defined in . The default name of this tag is **Analysis**, but it might be different for your organization.
4. If the priority override capability is enabled on , you can override the priority value for the issue as follows:

   Note
   The issue is not automatically visible in the newly assigned priority folder until the application metrics are refreshed on Fortify Software Security Center.

   1. From the **Priority Override** list, select the preferred priority value.
   2. Explain why you changed the value in the Add Comment for Issue dialog box.
   3. Click **OK**.
      The Priority changes to the value you selected. A warning symbol indicates that the Fortify-determined priority value was changed.

5. If additional custom tags are associated with the application version, specify values for those tags.
   The displays all custom tags assigned to the application; however, you can only provide values for tags that your user account has permission to edit. Use the following instructions to provide values for custom tags:
   - For text- and decimal-type custom tags, type the value in the box, and then click the **Save** button . Text-type custom tags accept up to 500 characters (HTML/XML tags and newlines are not allowed).
   - For date-type custom tags, type a date or click the **Select Date** button to select a date from a calendar.
   - For an extensible list-type custom tag, you can add a new value to the tag by clicking **Add Value**. You can then assign this new value to the custom tag by selecting it from the list.

   If any tag requires a comment, then after you provide a value for the tag, the Add Comment for Issue dialog box opens. In the **Comment** box, type a comment to describe the value you specified for the tag, and then click **OK**.
6. To add a comment for the issue audit:
   1. Click the **Add Comment** button .
   2. In the Add Comment for Issue dialog box, type a comment, and then click **OK**.

The makes the updates to the application version on .

Suppressing Issues

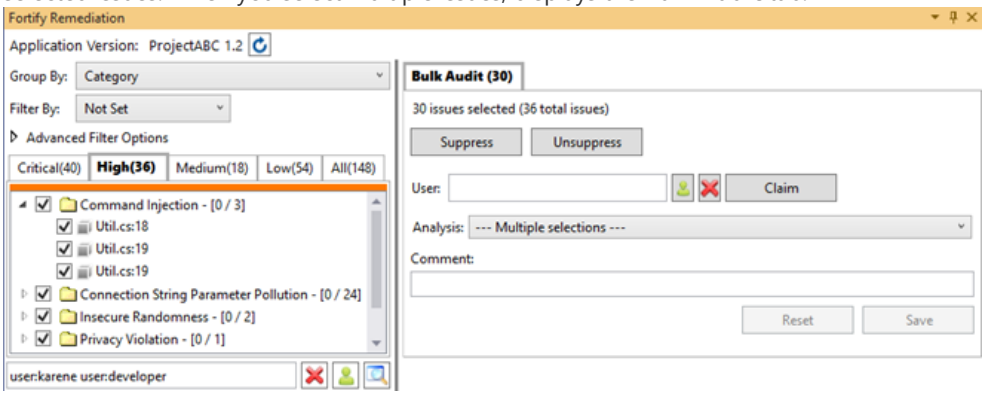
Auditing Multiple Issues

4.6.1. Auditing multiple issues

You can evaluate and assign audit information to a group of issues. To audit a single issue on the Audit tab, see Auditing . To see any updates to the audit information made in , click the **Refresh** button .

To audit multiple issues:

1. In the , select multiple issues (by selecting the check box for each issue) to which you want to add the same audit information.
   You can select one or more issues in the selected folder (tab). Switching to a different folder (tab) clears any previous selected issues. When you select multiple issues, displays the **Bulk Audit** tab.



> **Tip**
> Right-click an issue to clear all the selected issues or to select all issues in the current folder (tab).

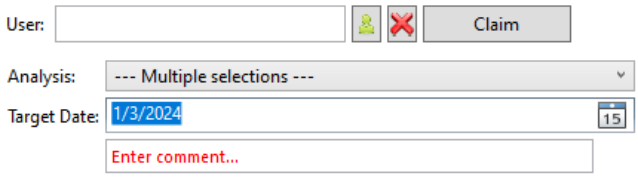
2. To assign a user to the selected issues, do one of the following:
   - Click the **Assign Issue to User** button , select a user name from the Select User dialog box, and then click **OK**.
   - Click **Claim** to assign the issues to yourself.

   To remove an assigned user, click the **Unassign Issue** button .
3. From the **Analysis** list, select a value that reflects your assessment of this issue.
   This is the primary tag defined in . The default name of this tag is **Analysis**, but it might be different for your organization.
4. If the priority override capability is enabled on , you can override the issue priority value by doing the following:
   1. From the **Priority Override** list, select the preferred priority value.
   2. In the box that appears below the list, type a comment to explain why you changed the value.

   > **Note**
   > The issues are only visible in the newly assigned priority folder after the application metrics are refreshed on .

5. If additional custom tags are associated with the application version, specify values for those tags.
   The displays all custom tags assigned to the application; however, you can only provide values for tags that your user account has permission to edit.
   Use the following instructions to provide values for custom tags:
   - For text- and decimal-type custom tags, type the value in the box.
     Text-type custom tags accept up to 500 characters (HTML/XML tags and newlines are not allowed).
   - For date-type custom tags, type a date or click the **Select Date** button to select a date from a calendar.
   - For an extensible list-type custom tag, you can add a new value to the tag by clicking **Add Value**. You can then assign this new value to the custom tag by selecting it from the list.

   If any tag requires a comment, then after you provide a value for the tag, you must type a comment in the comment box that appears below the tag box.



6. To add a comment for the audit of these issues, type the content in the **Comment** box.
7. Click **Save**.

The makes the updates to the application version in .

Suppressing Issues

Auditing

4.6.2. Suppressing issues

You can suppress issues that are either fixed or that you do not plan to fix. Suppression marks the issue, and all future discoveries of this issue as suppressed. As such, it is a semi-permanent marking of a vulnerability.

To suppress an issue:

1. From a folder in the , select one or more issues.
2. On the **Audit** or **Bulk Audit** tab, click **Suppress**.
3. (Optional) In the Suppress Issues dialog box, describe the reason for suppressing the issue.
4. Click **OK** to confirm the issue suppression.

To unsuppress an issue:

1. Make sure that suppressed issues are visible.
   To display issues that have been suppressed, see Customizing Issue Visibility.
2. From a folder in the , select one or more suppressed issues.
3. On the **Audit** or **Bulk Audit** tab, click **Unsuppress**.
4. (Optional) In the Suppress Issues dialog box, describe the reason for unsuppressing the issue.
5. Click **OK** to confirm the issue unsuppression.

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