CAST Highlight

Getting Started Guide

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Introduction

Welcome to CAST Highlight, CAST's application portfolio analysis software-as-a-service (SaaS). As a fast, intuitive, and easy-to-use platform, CAST Highlight assesses the health of custom business applications across an organization's IT portfolio. The platform generates metrics on each application's software risk, complexity, size, and other key indicators, and delivers you increased visibility into overall system health.

This guide is designed to get you up and running with CAST Highlight today. If you are the project administrator for your organization's CAST Highlight instance, we recommend you use this entire manual as a reference guide. Section II: Setting up your project in CAST Highlight is designed especially for you. Application owners, we suggest you focus on Section III: Analyzing source code in CAST Highlight.

Of course, if at any time you have questions or feedback, please don't hesitate to contact CAST Support at https://help.castsoftware.com.

Sincerely,

The CAST Highlight Team

Getting started with CAST Highlight

Technical requirements

CAST Highlight requirements:
- Microsoft Windows Operating System superior or equal to Windows 8
- Supported browsers: preferably Google Chrome recommended for better experience, Microsoft Edge, Firefox ESR. Generally, support is not guaranteed on browser versions which are no longer supported by their vendor.
- Code Reader Install/Scan: 400MB free disk space, 4GB memory
- Users should have administrator privileges to run the installer
- Source code is available and stored in text files, in UTF8 encoding, accessible from the machine where the Code Reader is running

Roles & access rights

CAST Highlight provides access rights at three different levels.

Portfolio Manager
- A Portfolio Manager is the administrator. This user has access to all pages in the organization's CAST Highlight instance. This role is assigned to the user or users at the organization who set up and maintain core aspects of the implementation. For example, the Portfolio Manager creates and manages other user accounts within the organization and can access the analysis results for all applications in the instance.
- The Portfolio Manager also manages the scope of each assessment campaign, including which applications are analyzed and by whom, and oversees any customization of the survey.
- The Portfolio Manager can download the CAST Highlight agent and, if desired, he or she can analyze applications on behalf of application owners.

Application and Domain Contributor
- A Domain Contributor is attached to a domain and can contribute to any application attached to this domain (upload scan results, answer surveys). The Domain Contributor has visibility on all application results of this domain.

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- An Application Contributor can contribute (upload scan results, answer surveys) only to the applications where he/she has been specifically added as a contributor. The Application Contributor has visibility only on results of applications he/she has been assigned to.

- Contributors can download the CAST Highlight agent, analyze their application(s), upload application results, answer survey questions, and access the results.

Result Viewer
- A Viewer is the role typically assigned to an executive member of the organization.
- Viewers are attached to a domain and can access results for all applications of this domain (e.g., if the user is attached to the root domain, this user will see all application results of the portfolio).
- Viewers cannot download the CAST Highlight agent, analyze an application nor complete survey questions.

New user set-up
First-time log in
All first-time users of CAST Highlight will receive an account activation email.

Greetings Alexandra,

You've requested a CAST Highlight account. Our industry-leading analytics platform allows you to gain insight into the technical risk within your application portfolio. For more information on how Highlight can help your organization uncover technical risk, visit our page here.

To activate your account, please click the confirmation link below:
#/Registration/4810c69c-b41c-42e5-84ed-ef69347d611a

(If the link is not working, copy and paste the hyperlink into your browser)

Please note that your Highlight user ID is: a.szynkarski@castsoftware.com

If you have any issues, please contact your Highlight administrator or email us at HighlightSupport@castsoftware.com .

Regards,

The CAST Highlight Team

Simply click on the activation link to activate your account on the CAST Highlight portal.

Enter a password to complete the activation process. You will then be re-directed to the CAST Highlight home page. Login with your credentials to enter the portal.

Account settings
CAST Highlight includes an account settings view, where you can manage your login credentials and verify your access rights.
- On the top right-hand side of the portal, your name will be displayed.
- Click on the user icon to display the user side menu.
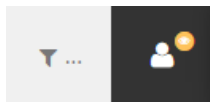
- Select My Account
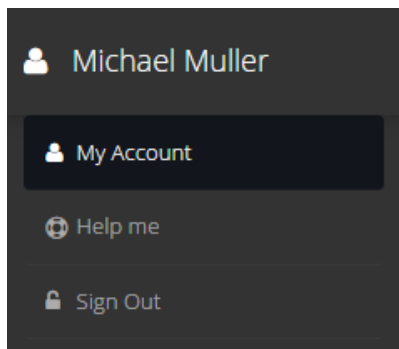
Security and password policy management

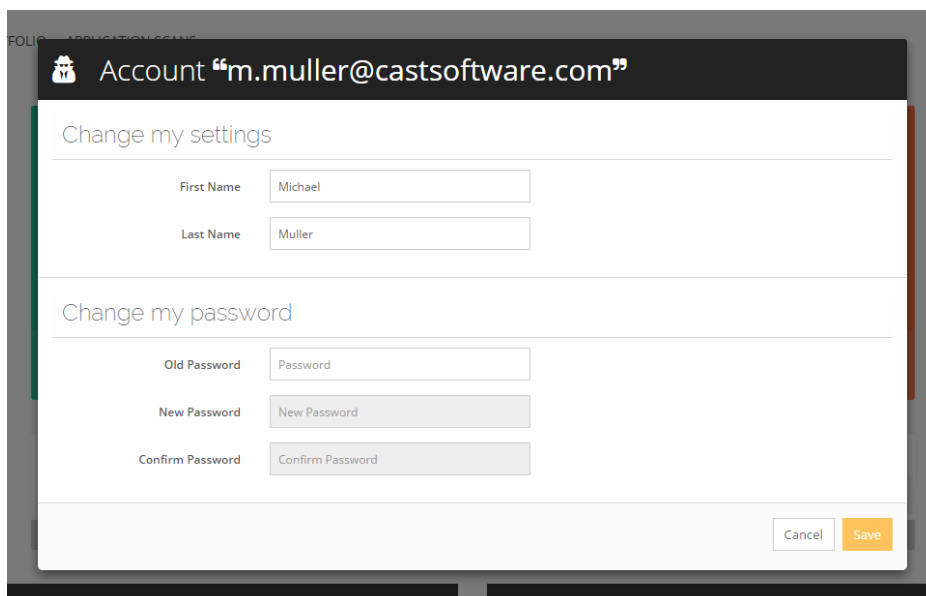In order to guarantee security of the platform and to support your internal security policy, it is now possible to decide on the strength level that user passwords must require. These settings are defined at company level.

By default, any enrolling user must select a password that requires the following criteria:

- Minimum length of 10 characters
- Must contain at least one alphabetic character
- Must contain at least one lower case character
- Must contain at least one upper case character

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▪ Must contain at least one numeric character

For companies who require stronger passwords for third-party solutions (i.e.: Highlight), the CAST Highlight platform administrator can specify additional password requirements:
▪ Password must contain at least one special character (e.g.: #-?@)
▪ Minimum length can be extended to comply with your policy (e.g. 14 characters)

Please note that in the current version of Highlight, this feature is not retro-active for users who already defined their password. This feature is accessible to the Highlight platform administrator. You can request a modification of your password criteria at any moment, by contacting the CAST support at https://help.castsoftware.com.

Alternatively, user authentication can be done through SAML2/SSO integration with your organization directory. Contact your CAST Professional Services representative for more information.

Setting up your project in CAST Highlight

Important: This section of the user guide is dedicated to the Portfolio Manager. Users assigned to Contributor roles can skip this section of the guide and go straight to Section III: Analyzing Your Source Code in CAST Highlight.

All the features detailed in this section take part in the Plan section of the CAST Highlight portal.

Domain, Application, and User management

Portfolio Managers can create, update and delete domains, subdomains, applications and users from the same screen.
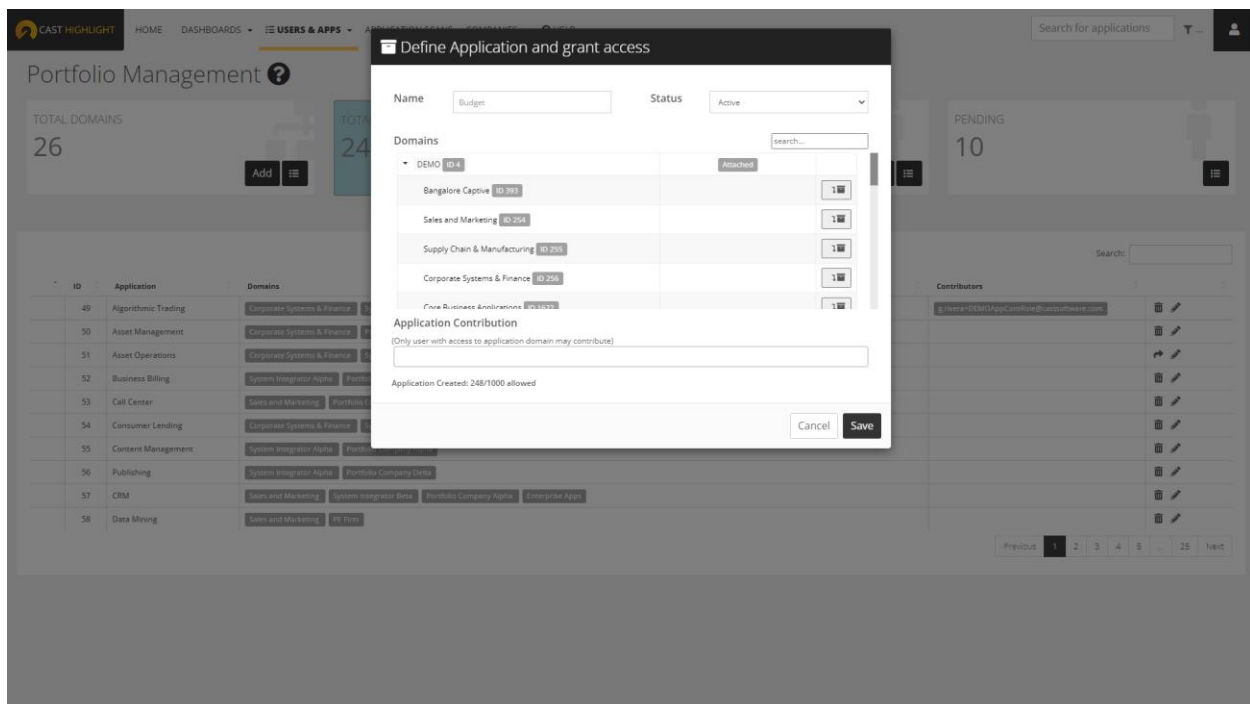
For further guidance on portfolio management features, please refer to this product tutorial: https://doc.casthighlight.com/feature-focus-portfolio-management-optimization/

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For SSO/SAML-configured CAST Highlight instances, please refer to this documentation: https://doc.casthighlight.com/cast-highlight-saml-sso-integration-with-identity-providers-idp/

Survey management

Setting up a survey

The survey is designed to collect valuable inputs from application owners regarding each application analyzed by CAST Highlight. To access survey management features, visit the Manage Portfolio section and click "Manage Surveys."
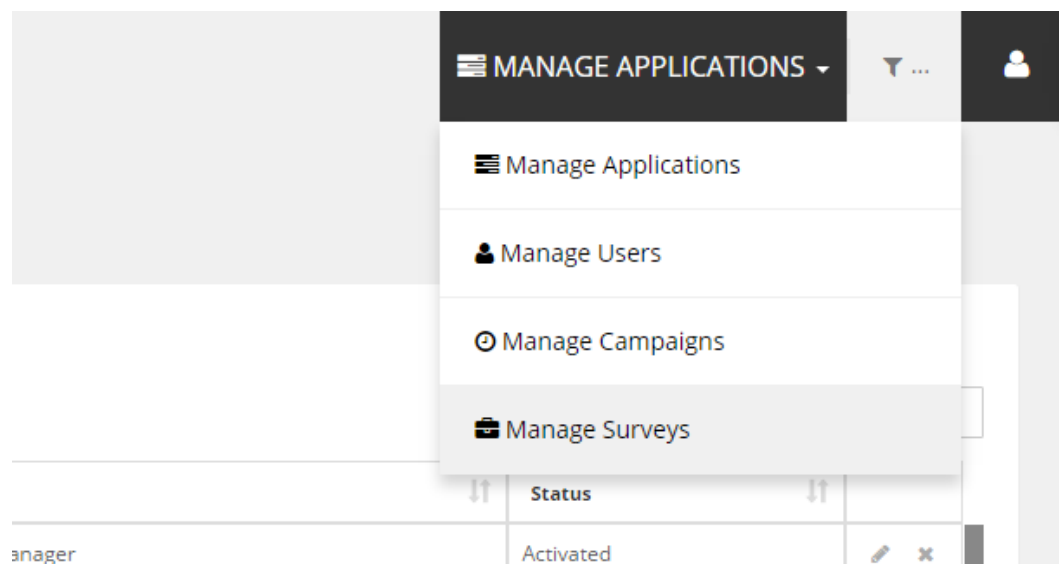
Two kind of survey are available:

- **CAST standard surveys:** these surveys are provided by CAST. You can use them and override/customize labels for your application campaigns.
- **Custom surveys:** these surveys are created by Portfolio Managers within your organization. You can create and administrate them.

All active surveys that can be used for a campaign are listed in the right panel ("Active Surveys"). You can unfold them to see, remove or make mandatory the questions, except for CAST standard surveys for which the content is locked. In case you want to customize CAST standard surveys, you'll have to clone them first.

To override survey labels (e.g. to translate description in another language), click on the pen icon. To remove a question of a survey or make it mandatory, respectively click on the cross or the star.

CAST standard surveys

The platform uses the responses of CAST standard surveys to generate a Business Impact indicator for each application, a Cloud Maturity indicator and a Software Maintenance Estimate. The Portfolio Manager sets up the survey, and the Contributor – typically the application lead – answers the questions and runs the code analysis.

The surveys are divided into four sections:

- Application Properties
  This the survey contains key questions to qualify your applications:

  o The application category: is the application a COTS (Commercial Off The Shelf), a custom application, a customized COTS or integration code?
  o The application type: is the application a CRM, an ERP, a Consumer Lending application, etc.?
  o Initial release year: when has the application been initially implemented?

- Business Impact
  This survey provides 10 questions which are used to calculate the Business Impact index in CAST Highlight. These questions are required for CAST Highlight to generate the Business Impact metric for the application, but your organization can de-activate or customize this the survey, if you prefer. Note also that the weighting of these questions and answers can be customized to fit with your business specificities. See this tutorial to learn how to do so.

- Cloud Maturity
  This survey provides 12 questions which are used to calculate the Cloud Maturity indicator in Highlight. These questions are required for CAST Highlight to generate the Cloud Maturity metric for the application, but your organization can de-activate or customize this the survey, if you prefer. Note also that the weighting of these questions and answers can be customized to fit with your business specificities. See this tutorial to learn how to do so.

- Green Impact
  This survey provides 13 questions which are used to calculate the Green Impact indicator in Highlight. These questions are required for CAST Highlight to generate the Green Impact metric for the application, but your organization can de-activate or customize this the survey, if you prefer. Note also that the weighting of these questions and answers can be customized to fit with your business specificities. See this tutorial to learn how to do so.

- Software Maintenance Estimate
  This survey provides six questions which are used to calculate the Software Maintenance Estimate in CAST Highlight. These questions are all required for CAST Highlight to generate the Software Maintenance Estimate for the application, but your organization can de-activate them entirely, if you prefer. This is covered on the next page of this guide.

  Note: For CAST Highlight to generate the Software Maintenance Estimate, the Contributor must complete both the Business Impact and Software Maintenance Estimate questions.

De-activating a CAST standard survey

If your organization wants, for instance, to focus exclusively on the source code analysis, you can remove the survey, or parts of the survey, from CAST Highlight.

- Navigate to the "Manage Surveys" tab under the Manage Portfolio section
- On the left panel, click on the link icon
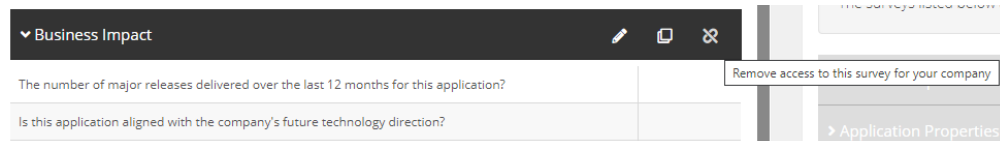
Clicking on this button will remove the survey from your CAST Highlight instance. Please note you cannot remove a single question from a given section; only full sections can be removed from the survey.

- The two survey sections can be re-activated at any time by clicking on the '+' icon for the corresponding survey from the Survey Catalog tab.
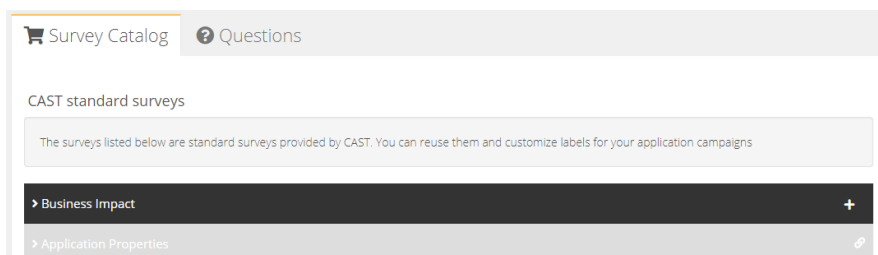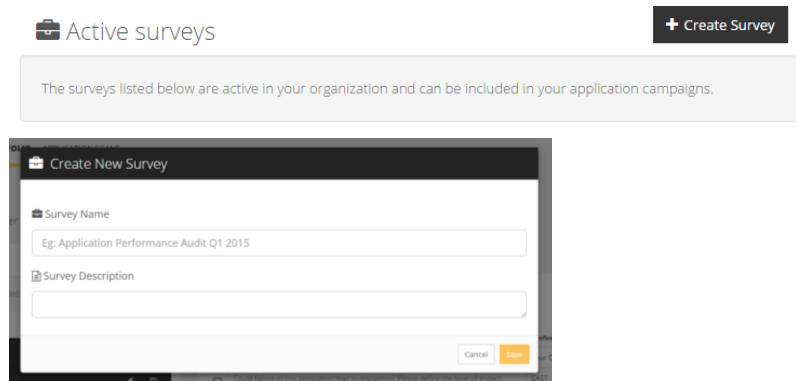

Custom surveys

A custom survey is an excellent way to gather additional information on your applications, to build complementary analytics to standard CAST indicators.

Creating a survey

To create a custom survey, in the Manage Portfolio > Manage Surveys section, click on "+ Create Survey" in the left panel. A modal opens to specify the name and description of the survey. To confirm the creation, click on "Save". This new survey will be added and available across your organization.

Adding, editing, or removing a question

Managing custom survey questions is easy. In the right panel, select the tab "Questions". The questions that have already been created are listed and you can attach them to a survey. If you want to create a new question, click on "+ Create Question".
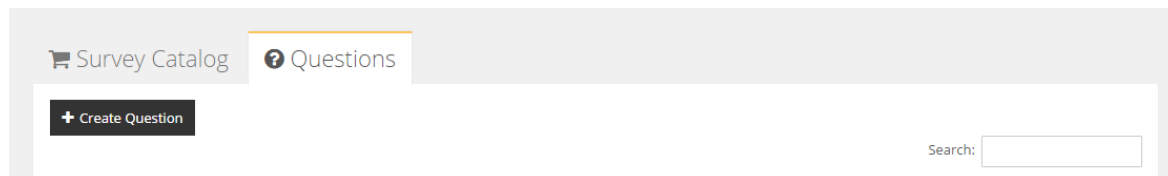
- Type in the question
- Chose the format of the answer (Text, Number, Percent, Date, or Multiple Value)
- Click "Save" to finalize the question and add it to the survey

A custom question can be edited or deleted at any time. Click on the edit or delete button, as shown below.

Attaching a question to a survey

To make one or many questions part of a survey, click on checkboxes of questions you want to include. Click on the file icon of the survey to attach the question. Note that you cannot attach a question to a CAST standard survey.

Mandatory questions

Questions of your custom surveys can be made mandatory or optional. Just click on the star button on the right-hand side of the question – a lit star means the question is mandatory.

Once your survey and its questions are ready, you can use it for a campaign.

Campaign management

Creating and launching a campaign

The term *campaign* in CAST Highlight is used to describe a set of applications that will be analyzed at a specific point in time. Launching a campaign allows the Portfolio Manager to send a communication to all the registered team members through CAST Highlight. This communication notifies each user that they should start analyzing their source code.

Important: It is required that applications are associated with a campaign for the Contributors to be able to conduct the analysis and complete the survey.

Setting up and launching a campaign can be done under the "Manage Campaigns" tab of the Manage Portfolio section.

▪ Navigate to the "Manage Campaigns" tab under Manage Portfolio section
▪ Click the "Create Campaign" button
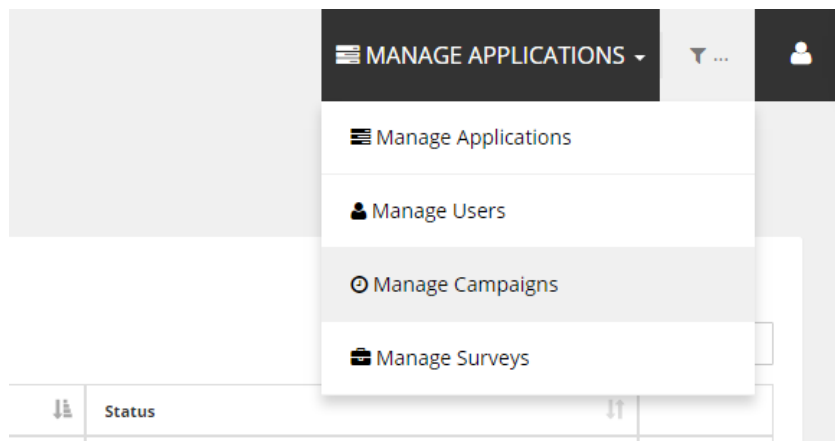
The following information will need to be provided:

▪ **Name** – what is the name of the campaign? (e.g.: *January Campaign; Business Services Campaign, etc.*). This name will be displayed in the portal.
▪ **Closing Date** – The end date for the campaign. Contributors will not be able to submit results after this date.
▪ **Domain and Application scope** – which applications will be analyzed in this campaign

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Please note, all applications that need to be added to a campaign must be created in the "Manage Applications" tab beforehand. For more information, see "Creating Application Records"

Once you've entered the above information into the "Create Campaign" screens, click on the "Next Step" button. You will see the Launch message, as shown below. This message will be sent via email to all the users associated to the applications in the campaign. Customize the message to your liking – up to 1,024 characters – and click 'Complete'. Each user will receive the email, also shown below.

Analyzing source code in CAST Highlight

This section of the guide is designed for team members with a Contributor role, typically the application owners. For teams who want to leverage automation capabilities of the Highlight command line, please refer to this link from which the tool can be downloaded.

Installing the Code Reader

Download the Code Reader under the Application Scans section of the portal. Haven't downloaded the Code Reader in a while? Be sure to download the latest version from the CAST Highlight portal.
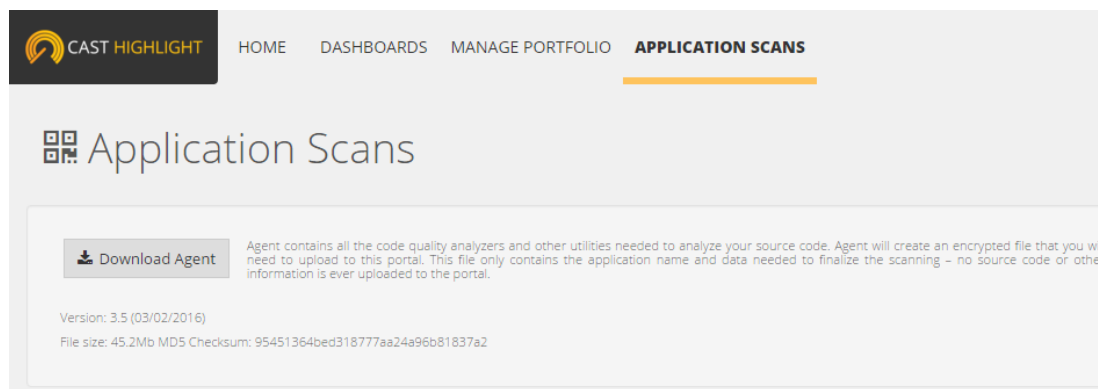
Launch the CASTHighlightSetup.exe installation program and follow the set-up instructions. Once the CAST Highlight agent is installed, it will create a shortcut on your desktop. Now you are ready to analyze an application.

Alternatively, you can download our command line from the same page. The CLI documentation can also be found online. It contains the same analyzers than the Code Reader but has some automatic result upload facilities and allows integration with your CI/CD environment.

Define your Code Scan Scope

As CAST Highlight performs a code analysis at the file level and doesn't particularly consider the logical links or dependencies between these files, all files are considered equal and as being part of the application. In order to provide accurate and consistent results, especially from a Software Composition standpoint, you'll have to take a few minutes to prepare your code scan scope by using the file/folder exclusion features of the Code Reader.

- If you want to identify open source or COTS packages, make sure they're included in the folders you'll scan (external libraries are generally grouped into a sub-folder named "third-party" or something similar, while the main code is often located under "src/main").

- Test classes should be excluded except if you want to scan them.

- Generated code (e.g. *.t.ds, *.flow.js) should be excluded as well as they're automatically produced by the system and the development team can't really manage software health of this aspect of the code.

- For more consistent results, SCM, build and deployment folders (e.g. .git, .svn) shouldn't be part of the scope.

- If you want to get insights on frameworks and dependencies whose physical files are not part of the folder you're scanning, make sure that the dependency files (e.g. pom.xml, build.gradle, package.json, .vcsproj, etc.) are there too.

To the extreme opposite case, if you scan your C:\ drive and all the folders and files it contains, Highlight will systematically scan files with the 40+ technologies it supports and will try to consolidate the different insights (software health, cloud maturity, open source origin, security vulnerabilities...) from there.

As you can easily understand, the few minutes you'll spend in defining your application scope will be saved later when consuming the software analytics.

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Running the Code Reader

- Click the CAST Highlight Agent shortcut on your desktop to launch the agent
- Select the folder containing your source code. As shown below, you can add multiple folders to be discovered by the Agent
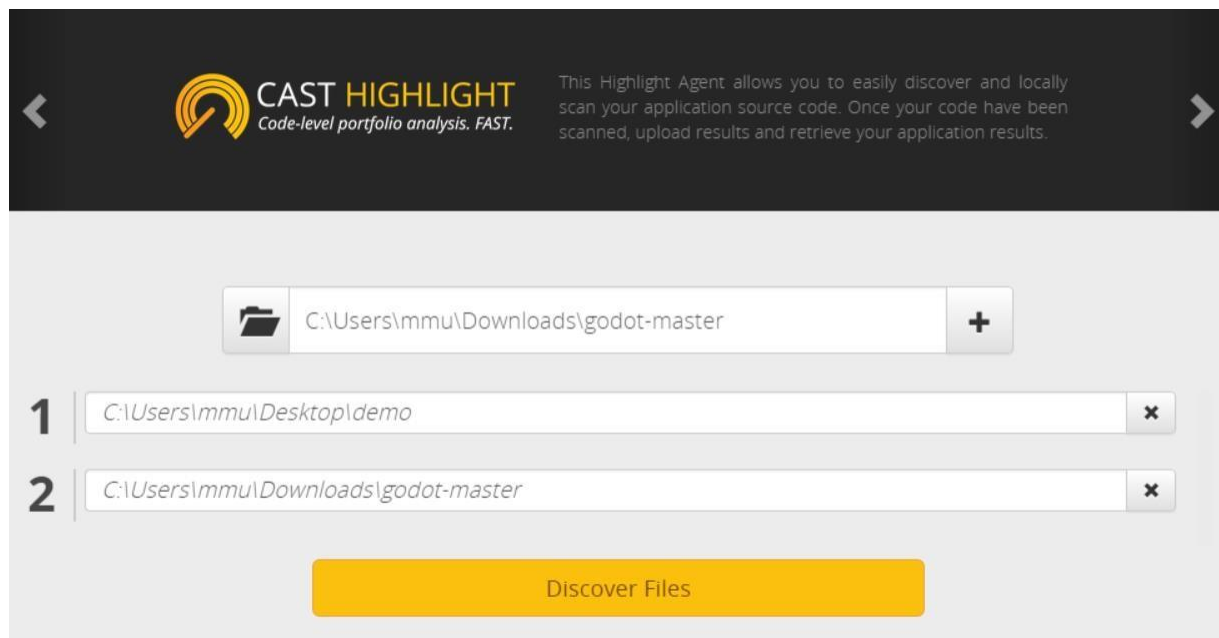
- For best performance, it is recommended to select source folders on your local machine, though the Agent supports source discovery through network paths, if your permissions allow to do so.
- If the total number of files exceeds 10,000 files, it is recommended to use the Command Line which is less CPU-consuming, or eventually to split the application scan into several separate scans
- When your folder selection is ready, click on "Discover Files". The Agent will automatically discover files in specified folders and subfolders and detect associated technologies.
- You can cancel the discovery at any moment by clicking on the "Cancel" button

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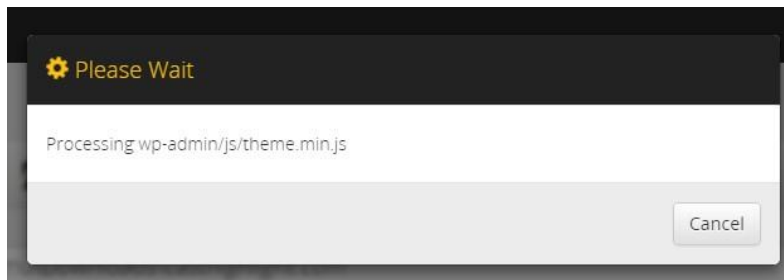
- Once the discovery step is completed, the Agent lists folders and files that have been found
  - The "Technologies" column indicates associated technologies and file count for each
  - The "Path" column indicates the location of discovered folders and files
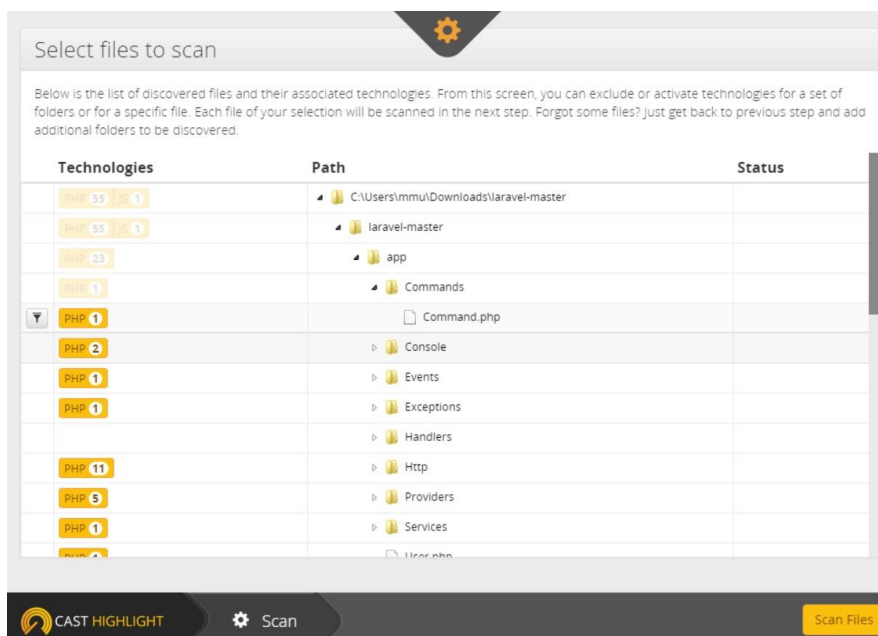
- To refine the scan which will be performed the step after, you can:
  - Deactivate one or more technologies for a specific folder or file. If all technologies are deactivated, your folder or file will be de facto excluded

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from the scan scope. To do so, just click on the yellow label you want to deactivate (PHP 12 becomes PHP 0)
- Manually associate a technology to a specific file or folder by clicking on the ▼ icon that appears in the left column when hovering a file or a folder
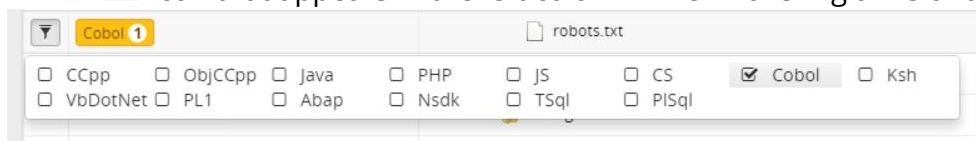
-
  - These scan settings are saved and will make discovery faster for further analysis of a same folder, until you keep the configuration file (*.casthighlight*) that is created by the Agent and stored in your root source folder
- Once your scan configuration is set, click on the "Scan Files" button at bottom right of the screen. During the scan, a progress bar indicates where the Agent is standing in the process
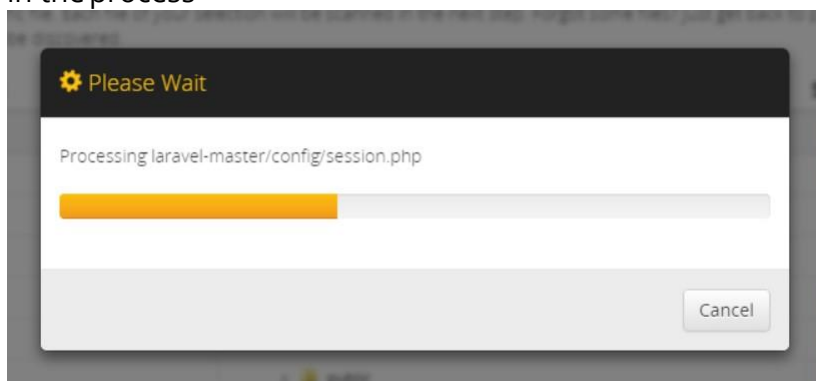
-
- Once the scan is finished, you can see status at folder and file levels
  - Green label means that files have been correctly scanned with the associated technology
  - Grey label means that files have not been scanned and excluded for some reason. The reason is available at file level when hovering the label (eg: Code not compliant with enough analysis criteria, binary file, third-party library, etc.)

- Possible reasons for file exclusion are:
  - Binary file
  - Unreadable file
  - Missing file

- External library
- Encoded file
- Generated file
- Syntax error
- Content is not in the expected language
- Code not compliant with enough analysis criteria
- File is too big (the size limit is 3MB)
- Time out
- Analyzer not available
- Some analysis unit are not OK

- If necessary, you can modify your settings then rescan your files by clicking again on "Scan Files".
- If scan results look good for you, click on the "Confirm Results" button at bottom right of the screen
- On the next screen, CAST Highlight lists dependencies and libraries used or referenced by your application that the Code Reader identified during the code scan:
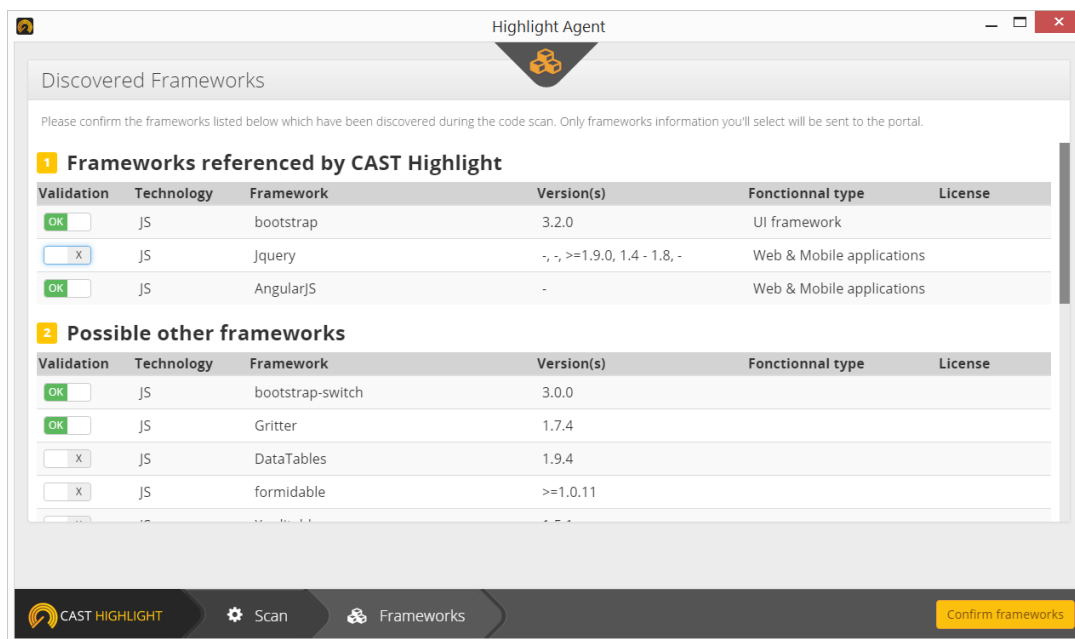
- You can keep or ignore elements of this list by clicking on their individual switch button. As a result, if a framework is switched off, it won't be listed in the portal and attached to your application.
- If you use a framework or a library which is not referenced by CAST Highlight, you can

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still manually add it to your results by providing the related technology, its name, the version number, the functional type and the license (MIT, Apache, LGPL, etc.). Click to the "+" icon to validate your entry.

- Then, click on "Confirm frameworks".
- Finally, the Agent displays a summary of scan results grouped by technology

- Click on the "Save Results" button at bottom right of the screen, specify the folder you want results to be saved in. Highlight will generate a single .zip file per scan, containing all application analysis results. Depending on the number of distinct technologies and root source folders, the Agent automatically generates one or several result files with the following naming structure:
    - FolderName.Technology.date.csv

      Eg: myappSRC.PHP.05_29_2015_11_17.csv
- You'll need to upload this .zip file to the Highlight Portal to complete your contribution to the application onboarding. However, you can also upload each .csv result file separately.
- In addition, the Code Reader also generates an analysis log file that allows users to check analysis status for each analyzed source file. This file prepend .csv extension with "*.analysislog*". These analysis log files should not be uploaded (and will be rejected anyway) to the platform.
- If you encounter any issue during the analysis process, and in order to facilitate support and interactions with our product team, you're now able to activate execution logs when launching a code scan. To enable this mode, hold CTRL while you're clicking on the Scan button. A .zip file will be created after in the analysis under the folder you

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specified for saving results.

Likewise, your files may have extensions that do not match the extensions detected by the Code Reader. It is recommended you rename file extensions as needed to match the extensions detected by the agent. Please see the _Best Practices section_ for more information

Tips and Tricks

For best practices on how to use the agent to analyze source code, please refer to the _Best Practices section_ in this guide.

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Uploading the results

The CAST Highlight agent produces a series of .csv files which contain the analysis results. To view the structure and definition of the file, please refer to Appendix B in this guide. These files are readable and contain anonymized metrics on scanned files.

The user must upload the .csv to the CAST Highlight portal for the results to be displayed in the system. Simply follow these steps:

- Log in to the portal
- Under the Application Scans section, look for the application that you to analyzed
- Click on the "Upload Results" button and point to the .csv. The file has been stored in the location you chose when saving analysis results with the Code Reader.
- Once the file is uploaded, you will see a record of the upload on the screen.

An analysis results file can be deleted at any time during the upload process by clicking on the icon "trash can" at the top-right hand side of the table. Only the Portfolio Manager or the

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Contributor who uploaded the results can remove their results – their password will be needed to validate the action.

Answering surveys

If the survey is activated for your organization, you will see a "Survey" button on the application. Please follow these steps to validate this and answer the survey questions.

- Under the Application Scans section, click on the campaign and then the application.
- Click on the "Survey" button and answer the questions for each section of the survey.
- If the survey is de-activated for your organization, please go ahead and submit the results of the source code analysis. Simply click the "Submit" button and you are finished.

For those of you who are completing the survey, the progress of your survey will be displayed on the top of the screen. Once all mandatory information has been submitted, you will be able to submit your results. However, it is recommended you answer all questions to enrich the data in your organization's CAST Highlight instance.

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Submitting the results

- Once you have uploaded all the required .csv files for the application, and completed the survey questions (if mandatory), click "Submit" on the application under Application Scans section.
- This step is required to complete the process and ensure the results are populated in the portal.

Please note, once the results have been submitted, a member with a Contributor role will not be able to make any changes. The Portfolio Manager is the only member who will have access to modify an application once results have been submitted. If the analysis or survey questions need to be redone for any reason, please contact your organization's Portfolio Manager. Not sure who this person is? Contact the CAST support at https://help.castsoftware.com.

Best practices for using the Code Reader

Please refer to the following best practices for analyzing source code with CAST Highlight. For more information, please contact the CAST support at https://help.castsoftware.com

SAP/Abap

▪ It is recommended the user leverage the CAST extractor to compile ABAP source files to be analyzed by CAST Highlight. Please visit https://help.castsoftware.com mailto:help@castsoftware.com for more information.

▪ Benefits of using the CAST extractor include:
  - The CAST Highlight agent has been validated with source files coming from the CAST extractor.
  - The CAST extractor automatically splits the files, which is required for the CAST Highlight analysis.
  - The Code Reader is designed to automatically handle files extracted with the CAST extractor, without the need for the user to modify file extensions.

▪ The user can choose to utilize a different extractor, but please note the above advantages of using the CAST extractor.

Javascript

▪ Third-party libraries and compressed files (filename.min.js) are generally not fit for analysis by CAST Highlight. These cases are automatically detected and excluded from the software health analysis, but results will be stored separately (in *.ThirdParties.csv) for the Software Composition Analysis features.

UNIX Shell scripts

▪ The agent can be used to analyze KSH (.ksh), Bourne shell (.sh) and Bourne Again shell (.bash), which have a very close syntax. C-Shell is not supported

▪ There are two options for analyzing UNIX Shell scripts in the CAST Highlight Agent. The difference between them is the file filtering

▪ The option with KSH (.ksh) will only consider files with ".ksh" extensions

▪ The option with KSH (*) will consider all files in the selected directory. Ksh scripts can have any extension, so the second option may be preferred but the user should select/unselect the files to be analyzed

PL/SQL

- CAST Highlight supports PL/SQL source files provided by any extractor. However, we recommend using CAST extractor. Please visit this page for more information.
- The source code should be provided through files .pkb, .pks, .psql or .sql.
- If the code is produced by an extractor and is contained in a single .sql or .psql file, it will be automatically split by the CAST Highlight Code Reader in functions, procedures and triggers. Code outside routines will also be analyzed, as a "root" artifact.
- The non-procedural part of PL/SQL code is excluded from the analysis.
- CAST database extractors produce .src by default. However, you can easily rename file extensions into .psql with the following command line
- For better results, it is recommended to use .psql file extension which will explicitly associate your files to the PL/SQL analyzer

```
Command Prompt
C:\SUPPORT\Output\delivery>for /d %x in (*) do pushd %x & ren *.src *.sql & popd
```

Microsoft T-SQL

- It is recommended the user leverage the CAST extractor to compile T-SQL source files to be analyzed by CAST Highlight. Please visit this page for more information.
- The CAST extractor automatically splits T-SQL files. This split consists of dispatching the procedural code with one artifact (procedures, functions and triggers) per file. Procedural code that is outside an artifact is considered a "root" artifact and is also analyzed.
- Like PL/SQL, the non-procedural part of T-SQL code is excluded from the analysis.
- CAST database extractors produce .src by default. However you can easily rename file extensions into .tsql with the following command line
- For better results, it is recommended to use .tsql extension which will explicitly associate your files to the Transact-SQL analyzer

```
Command Prompt
C:\SUPPORT\Output\delivery>for /d %x in (*) do pushd %x & ren *.src *.sql & popd
```

DB2

- Like PL/SQL, the non-procedural part of DB2 code is excluded from the analysis.
- For better results, it is recommended to use .db2 extension which will explicitly associate your files to the DB2 analyzer

MySQL

- Like PL/SQL, the non-procedural part of MySQL code is excluded from the analysis.
- For better results, it is recommended to use .mysql extension which will explicitly associate your files to the MySQL analyzer

PostgreSQL

- Like PL/SQL, the non-procedural part of PostgreSQL code is excluded from the analysis.
- For better results, it is recommended to use .postgresql extension which will explicitly associate your files to the PostgreSQL analyzer

MariaDB

- Like PL/SQL, the non-procedural part of MariaDB code is excluded from the analysis.
- For better results, it is recommended to use .mariadb extension which will explicitly associate your files to the MariaDB analyzer

Visual Basic
- The agent does not distinguish between VB.NET, VB5 and VB6. The source code has the same extensions and the syntax is very close. While the agent can generate results for VB5 or VB6, please note it is optimized for VB.NET applications.
- The agent cannot be used to analyze VB Scripts (.vbs).

Languages with no specific extension such as COBOL, UNIX shell scripts and PL1

- It is highly recommended the folder to be analyzed only contains source code. For example, it is best to not select a folder with copybooks or JCL for a COBOL analysis – select a folder with only the COBOL programs.
- As an alternative, the user can select a folder containing source code and other assets

and check or uncheck individual items in the list to specify which files CAST Highlight will analyze.

- CAST Highlight will automatically reject assets other than the source code, but this can slow down the analysis time.

Languages and file extensions

Source code files may have extensions that do not match the extensions detected by the Code Reader. It is recommended you rename file extensions as needed to match the extensions recognized by the agent. Please refer to the following tables.

Language	Source File Extensions
ABAP	.abap
Ada	.adb, .ads
Assembler	.asm
C /C++	.c, c++, cp, .h, .hpp, .hxx , h++
C#	.cs
CICS	.csd
Clojure	.clj
COBOL	.cob, .cbl, .ccp, .c85, .c74, .cpy, .sqb or any extension (text files) - only COBOL programs (PROCEDURE DIVISIONS) will be scanned. JCL and copybooks are not
CoffeeScript	.coffee, .litcoffee
Coldfusion	.cfm, .cfc
DB2	.db2, .sql
Delphi	.pas
Erlang	.erl

F#	.fs, .fsx
Fortran	.f, .f77, .f90, .f03, .for
Go	.go
Groovy	.groovy
IMS DB	.dbd, .psb
IMS DC	.tra, .mfs
Java	.java, .jav
Javascript	.js, .htm, .html, .xhtml
JCL	.jcl, .prc.jcl, .prc
JSP	.jsp, .jspf, .tld
Kotlin	.kt
Lisp	.lisp, .lsp
Lua	.lua
MariaDB	.mariadb, .sql
Matlab	.mlx
MySQL	.mysql, .sql
Natural	.nsp, .nsb, .nsl, .nsg, .nsa, .nsm, .nsc, .nsh, .nss, .nsd
Objective-C	.h, .m, .mm
Oracle PL\SQL	.psql, .sql, .pks, .pkb
PHP	.php, .php4, .php5, .php6, .inc
PL1	.pli, .plc or any extension
PostgreSQL	.postgresql, .sql

Python	.py, .pyw
R	.r
REXX	.rex, .rexx
Ruby	.rb
Rust	.rs
Salesforce ApEx	.trigger
Scala	.scala, .sc
SmallTalk	.st
Swift	.swift
T-SQL Microsoft SQL Server & Sybase	.tsql, .sql
TypeScript	.ts
Unix Shell Scripts	.ksh, .sh, .bash or any extension
Visual Basic / VB.Net	.vb, .bas, .cls, .frm

Databases	Source File Extensions
T-SQL Microsoft SQL Server & Sybase	.tsql, .sql
Oracle PL\SQL	.psql, .sql, .pks, .pkb
DB2	.db2, .sql
MySQL	.mysql, .sql

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PostgreSQL	.postgresql, .sql
MariaDB	.mariadb, .sql

CAST Highlight's analyzers also take binary extensions into consideration for Software Composition Analysis of possible third-party components:
- .jar (Java)
- .dll (Windows)
- .a
- .lib
- .so

After a scan, binary file information is stored in a separated result CSV file (BinaryLibraries.csv) which needs to be uploaded with other CSV results.

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The structure and definition of the analysis output file

The following information defines the structure and definition of the output files generated by the CAST Highlight Agent. The output files contain three segments of data. The Output File Attributes, Section Attributes and the File attributes. Please note that customer data is not sent over the internet either by e-mail or via other internet protocols. The result of the code level analysis performed by the CAST Highlight agent on the Client infrastructure is uploaded to the website through https and encrypted in transit using a 256-bit encryption mechanism.

The CAST Highlight Code Reader produces different types of CSV result files whose structure may vary. These files are all readable, don't hesitate to open them to see their structure and content.

Output file attributes
- #Info
- # app_version: Identifies the version of the analyzed application
- # version_count: Identifies the version of the agent.
- # app_type: Identifies the type of analysis
- # base_name: Output file name as specified by the user
- # csv_base_filename: Output file name
- # version_Highlight: CAST Highlight agent version number
- # start_date: Analysis Date
- # uuid: CAST Highlight UUID identifier of the current file

Section attributes
Section: The section data defines the file structure for the specific analyzer along with additional analyzer attributes. Scan metrics are anonymized (e.g. Id_123) and decoded by the portal once the file has been uploaded.

File Output Structure example

[Dat_FileName;Dat_Language;Dat_AnalysisDate;Dat_AnalysisStatus;Dat_AbortCause;Dat_AnaModel;Dat_Lines;Nbr_Lines;Id_008;Id_010;Id_011;Id_014;Id_029;Id_033;Id_037;Id_049;Id_064;Id_072;Id_078;Id_082;Id_083;Id_084;Id_095;Id_102;Id_104;Id_105;Id_108;Id_115;Id_116;Id_120;Id_137;Id_142;Id_144;Id_147;Id_150;Id_155;Id_156;Id_161;Id_163;Id_164;Id_166;Id_168;Id_179;Id_188;Id_199;Id_211;Id_213;Id_214;Id_215;Id_219;Id_220;Id_228;Id_232;Id_236;Id_240;Id_243;Id_244;Id_250;Id_251;Id_255;Id_259;Id_260;Id_262;Id_264;Id_271;Id_275;Id_276;Id_285;Id_291;Id_299;Id_304;Id_316;Id_320;Id_321;Id_335;Id_337;Id_339;Id_345;Id_348;Id_349;Id_350;Id_359;Id_371;Id_480;Id_386;]

File Output Attribute definitions

- Dat_FileName: File Name
- Dat_Language: Programming language analyzed
- Dat_AnalysisDate: Date of the analysis
- Dat_CRC: Legacy fingerprint based on file content
- Dat_SHA256: Fingerprint based on content
- Dat_AnalysisStatus: Reports the analysis status
- Dat_AbortCause: Reports the cause of failure.
- Dat_AnaModel: Reports the model of the count
- Dat_Lines: Number of lines of code analyzed
- Nbr_Lines: Number of lines of code analyzed
- Id_#: Reports alarm counts against specific rules per analyzer. These values are parsed as part of the reporting process to derive CAST Highlight risk ratings.

A file summary is generated for each file analyzed. The data is present as defined in the Section format above. A sample of the output is provided below:

(ejb/AuthorsBean.java;Java;20120702113949;0;None;unspecified;33;33;0;6;0;0;112;0;3;0;0;0;0;0;0;0;0;1;0;1;1;0;1;0;0;2;0;0;1;0;0;0;0;0;0;0;0;0;0;0;0;0;0;0;0;0;0;0;0;1;45;0;0;0;3;0;0;0;1;0;3;0;0;1;0;0;0;0;0;5;21;0;0;1;0;0;0;1;9;0;2;)

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Code Scan Troubleshooting & Support

Sometimes (very rarely), the scan process could stop for unexpected reasons. Fortunately, out of the box, the Code Reader generates traces and log files that are used by the support team when a scan issue occurs, in order to investigate and solve the issue. These log files are located on the machine where the Code Reader is running.

Example path to the log files:
C:\Users\[USERNAME]\AppData\Local\nw\analyzes\

Each code scan creates a numbered sub-folder which contains scan log files. In case of a problem occurs during a specific code scan, please zip this number sub-folder and send it as an attachment to the CAST support at https://help.castsoftware.com. It will automatically create a tracked support ticket which will assigned to the product team for investigation.

Advanced log files

If required by the product team to identify and solve your issue, you might be asked to re-scan your application to generate more detailed log files. You'll be able to perform this action by holding CTRL key when clicking on the SCAN button in the Code Reader. This specific action will create additional traces (mainly, stderr.log and stdout.log for each technology stack you scanned) stored in the same numbered folder for a given scan.

Known limitations

- Long paths on Windows: if you're scanning files whose paths (directories/and/file.name) are too long (more than 260 characters), the scan will likely interrupt. Workaround is to reduce the length of the path.

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Personal Data

Which Personal Data is necessary for CAST to provide the service?

- The professional email address of people using the CAST Highlight service
- The firstname of people using the CAST Highlight service (optional),
- The lastname of people using the CAST Highlight service (optional),

No sensitive personal data is necessary for CAST to provide the CAST Highlight service

Why does CAST needs to process Personal Data?

Their professional email address is used by people to log in to CAST Highlight. Without this information, people can't use the service provided by CAST Highlight

How does CAST collects Personal Data?

Collecting the professional email address, firstname and lastname of people using the service is part of a CAST Highlight portfolio user provisioning.

User provisioning is not done by CAST but the individual designated as the portfolio administrator at the customer company side.

The only account created by CAST is the portfolio administrator account.

Where is stored Personal Data?

The professional email address of people using the CAST Highlight service is stored in the CAST Highlight database. It is encrypted in transit and in storage. It is never transferred to another country nor shared with third parties.

Do people using CAST Highlight have the right to have their personal data rectified

Yes, by contacting their company portfolio administrator (cf. "How does CAST collects Personal Data").

Please be aware that deleting or altering the professional email address of people using the CAST Highlight server will prevent them from keeping using the service.

People can get the contact details of their company portfolio manager by sending an email to help@castsoftware.com.

How long does CAST store Personal Data?

Contractually, all data collect, processed, and stored by CAST Highlight is deleted 2 years after the end of the contract. This delay may be shortened upon customer request.