How to install, configure and use CAST Highlight extensions for **Azure DevOps**

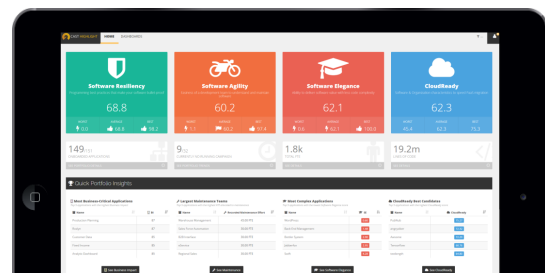**casthighlight**.com

What is CAST Highlight

CAST Highlight is the SaaS platform to monitor software health, cloud readiness, complexity & cost of your Application Portfolio with code-level analytics. Highlight supports a wide variety of technologies, including Java, COBOL, SAP/Abap, .Net, Python, PHP, PL/SQL, Objective-C & more.

Highlight uses predictive patterns analysis built over time by scanning thousands of applications and billions of lines of code. By looking at the frequency of issues and potential impacts found into source code, managers can review how the factory is operating without drowning in detail.

In Highlight, software health of a project is monitored and tracked through four main indicators that consolidate hundreds of code patterns:
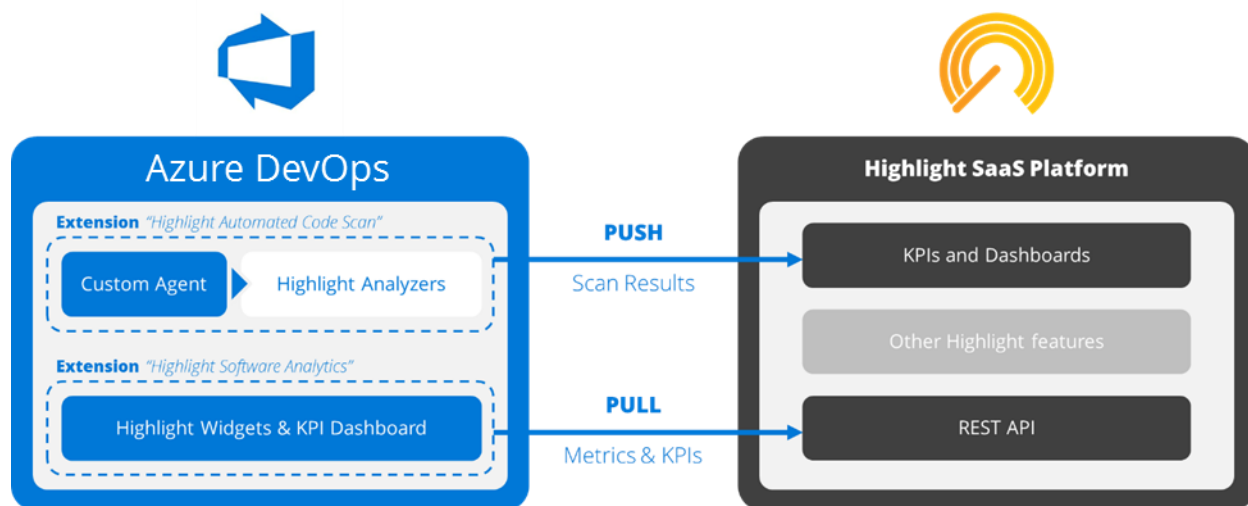
- **Software Resiliency:** indicates programming best practices that make software bullet-proof, more robust and secure. This index is derived through technology-specific code analysis that searches for the presence of code patterns that may comprise the reliability of the software at short term.
  Click here for more information

- **Software Agility:** Software Agility indicates the easiness of a development team to understand and maintain an application. This index is derived through technology-specific code analysis that searches for the presence of embedded documentation and code readability good practices.
  Click here for more information

- **Software Elegance:** Software Elegance measures the ability to deliver software value with less code complexity. A low Software Elegance score indicates decreased quality in the code resulting in higher defects that become costly to fix at mid-term.
  Click here for more information

- **Cloud Readiness:** In Highlight, cloud readiness of an application is measured by the CloudReady index. This indicator assess the software & organization characteristics that can slow or speed a PaaS migration.
  Click here for more information

More information: casthighlight.com

Overview of Highlight's extensions for Azure DevOps

The aim of CAST Highlight's extensions is to allow organizations using Azure DevOps to easily and continuously integrate and consume code-level and fact-based analytics in their software factory, while providing a consolidated view on project portfolio health to IT executives and business stake holders.
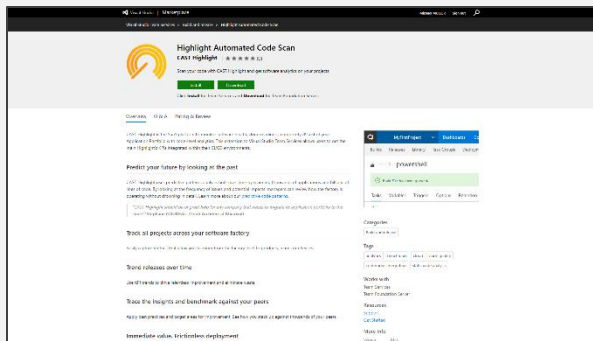

- The first extension documented hereafter (Highlight Automated Code Scan) configures and automates the code scan of a project and publish the results on Highlight dashboards, through a Azure DevOps custom agent.

- The second extension (Highlight Software Analytics) consolidates and displays metrics of your scanned projects as tiles and out-of-the-box dashboard in Azure DevOps, through the Highlight API.

In complement of these extensions, additional analytics (framework inventory, business impact estimation, reporting capabilities, etc.) are available directly on the SaaS platform within your regular Highlight account.

For any question, feedback or assistance on these extensions, don't hesitate to contact our product team at support@casthighlight.com.

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321 W. 44th St., Suite 501 – New-York, NY 10036
+1 212 871 8330
contact@casthighlight.com

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Highlight Automated Code Scan

This extension documented hereafter (Highlight Automated Code Scan) configures and automates the code scan of a project and publish the results on Highlight dashboards, through a Azure DevOps custom agent.

Azure DevOps Market Place: download the extension
Category: Build and release
Work with: Azure DevOps, Team Foundation Server (TFS)

Prerequisites

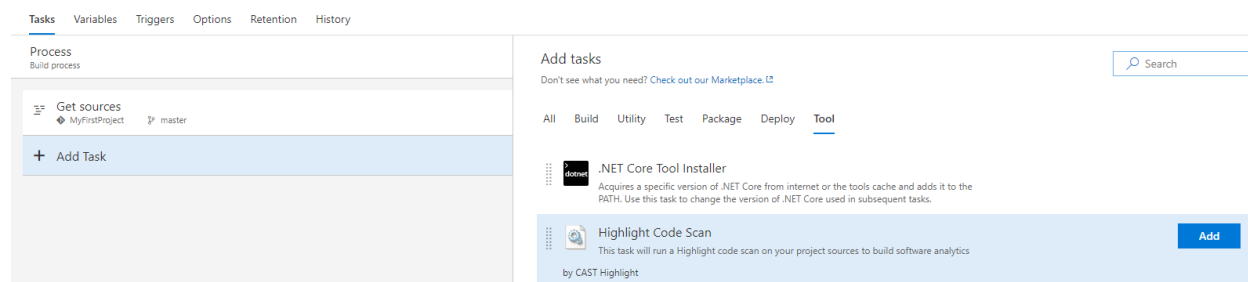In order to use this extension and scan source code from Azure DevOps, you should have:

- An Highlight portfolio setup (you can request a 30-day trial)
- At least one project/application created in the Highlight platform
- An Highlight user account with contributor or portfolio manager privileges for the project/application you want to scan
- Obviously, a Azure DevOps account with some projects ;)

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Extension configuration

In a nutshell, this extension allows Azure DevOps users to run Highlight scans against a code repository as a build task, and to upload scan results for the corresponding project/application in the company's Highlight portfolio. Find hereafter the detailed steps to make it happen. In the next section, you'll see how to leverage these results and add Highlight software analytics back into your Azure DevOps dashboards.

Once the extension has been installed into your Azure DevOps account, a new task will be available in the build definitions of your projects:

- In Build & Release, create or edit a build definition
- Click on "+ Add Task" and click on the "Tool" tab
- Find the Highlight Automated Code Scan task and click on "Add"

Note: Since this task will scan source code, you should get your project sources prior to executing this task.

From here, you'll be able to configure the scan task by providing the extension with scan and result upload options:

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Scan Settings ⌃

Snapshot Label ⓘ

$(System.TeamProject) $(Build.SourceBranchName) $(Build.SourceVersion)

Source Directory ⓘ

⋯

Folder Exclusions ⓘ

test, .git, COTS

Specific technologies to scan ⓘ

Java, Python

Result Upload Options ⌃

☑ Automatic Scan Result Upload ⓘ

- The source directory you want to scan
  If not defined, Highlight will scan the root project folder

- The folders you may want to exclude from the scan
  E.g. tests, third-party libraries...

- The specific technologies you want to scan
  E.g. scan only Java and Python source code. If not defined, Highlight detect and scan all supported technologies

- The automatic upload option
  I.e. Upload scan results to the Highlight SaaS platform and publish project KPIs and metrics

In case of the automatic upload option is active, you'll have to pair your project with an existing project/application in the Highlight platform. To do so, still in the edition panel of your build definition, add/edit the process variables as shown below.

| Tasks | Variables | Triggers | Options | Retention | History |

Process variables	Name	Value
Variable groups	system.collectionId	
Predefined variables ↗	system.teamProject	MyFirstProject
	system.definitionId	1
	system.debug	false
	highlightApplicationId	340
	highlightCompanyId	2
	highlightInstanceUrl	https://cloud.casthighlight.com
	highlightUserToken	...

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- **highlightApplicationId:** the application identifier
- **highlightCompanyId:** the company identifier
- **highlightInstanceUrl:** the instance server url
- **highlightUserToken:** a base64 encoding of your Highlight user credentials as follows base64(login:password)

Once these scan and upload parameter have been set, save your build definition. You're now just one step away to scan your first project with CAST Highlight.

Installation of a Custom Azure DevOps agent

Since CAST Highlight analyzers are Perl-based and as Azure DevOps hosted agents (the virtual machines where your builds and tasks will be executed) currently don't support Perl, you'll have to deploy a custom Azure DevOps agent, if that's not already the case.

The following Microsoft resources detail how to set up a Azure DevOps custom agent:

- **Windows:** https://docs.microsoft.com/en-us/vsts/build-release/actions/agents/v2-windows
- **Linux:** https://docs.microsoft.com/en-us/vsts/build-release/actions/agents/v2-linux

Then, in order to make this extension works properly, you'll have to install and/or run the Highlight command line on this custom agent. Please refer to the command line documentation, depending on the OS of your Azure DevOps agent (Windows and Linux are supported).

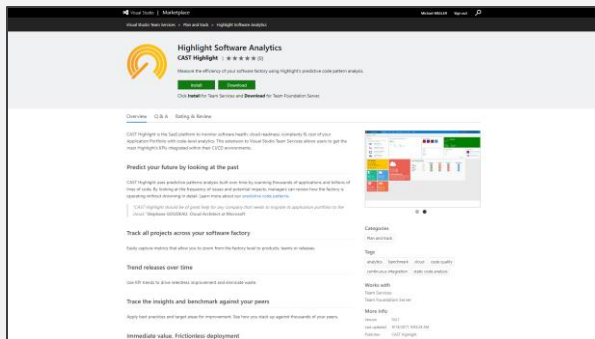The Highlight command line and documentation can be found from here.

Once the extension and the Azure DevOps custom agent are set up, you're can run your first build, scan the code, upload scan results to Highlight. You're now ready to get software analytics available in your Azure DevOps dashboards.

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Highlight Software Analytics

The second extension (Highlight Software Analytics) consolidates and displays metrics of your scanned projects as tiles and out-of-the-box dashboard in Azure DevOps, through the Highlight API.

Azure DevOps Marketplace: download the extension
Category: Plan and track
Work with: Azure DevOps, Team Foundation Server (TFS)

Prerequisites

In order to use this extension and display Highlight metric tiles in Azure DevOps, you should have:

- An Highlight portfolio setup (you can request a 30-day trial)
- At least one project/application with results available in the Highlight platform
- An Highlight user account with access to the projects/applications you want to report and consolidate in Azure DevOps
- Obviously, a Azure DevOps account with some projects ;)

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Extension configuration

In order to integrate software analytics of a project that have been previously scanned with Highlight, you'll have to link Highlight identifiers with your project build definition, as follows: In Highlight, retrieve the instance server url, the application and company IDs:

- These IDs can be found in MANAGE PORTFOLIO (requires a Portfolio Manager user account), in the url address bar once you click on an application
- The url will look like:
  https://rpa.casthighlight.com/#BusinessUnits/4/Applications/13707
  - The instance server url is https://cloud.casthighlight.com
  - The company ID is 2
  - The application ID is 340

Back in Azure DevOps, edit the build definition of your project and add the following variables:

- **highlightApplicationId:** the application identified
- **highlightCompanyId:** the company identifier
- **highlightInstanceUrl:** the instance server url
- **highlightUserToken:** a base64 encoding of your credentials as follows base64(login:password)

Finally, save the build definition. These steps will automatically add your project in the request sent by the extension to the Highlight API, and will make available project metrics and KPIs in the Azure DevOps widgets.

Available Azure DevOps widgets

Project Counter
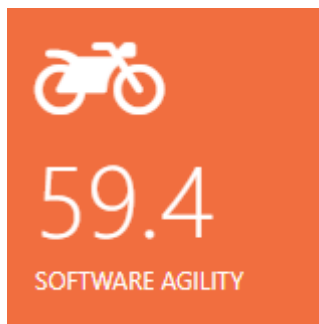
CAST Highlight

3525 kloc

6 SCANNED PROJECTS

This widget displays the total number of projects scanned by Highlight and paired with Azure DevOps, as well as the total number of lines of code.
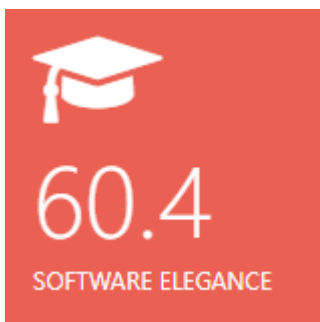
Software Resiliency

80.3

SOFTWARE RESILIENCY

This widget displays the aggregated Software Resiliency score (average) of all projects paired with Azure DevOps.
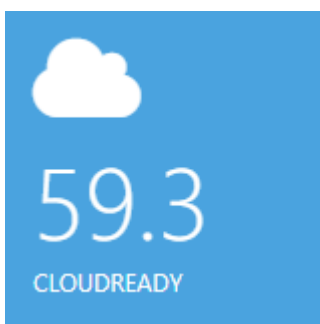
Software Agility

59.4

SOFTWARE AGILITY

This widget displays the aggregated Software Agility score (average) of all projects paired with Azure DevOps.
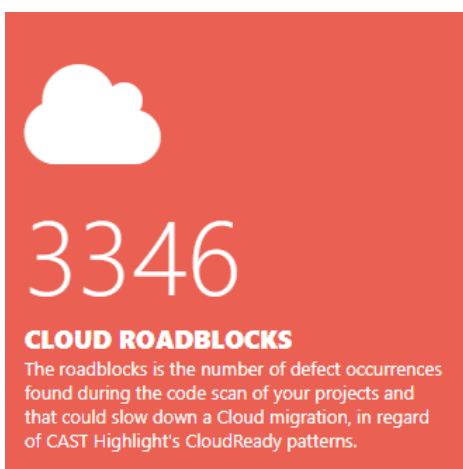
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Software Elegance

60.4

SOFTWARE ELEGANCE

This widget displays the aggregated Software Elegance score (average) of all projects paired with Azure DevOps.

CloudReady

59.3

CLOUDREADY

This widget displays the aggregated Cloud Ready score (average) of all projects paired with Azure DevOps.

Cloud Roadblocks

3346

CLOUD ROADBLOCKS

The roadblocks is the number of defect occurrences found during the code scan of your projects and that could slow down a Cloud migration, in regard of CAST Highlight's CloudReady patterns.
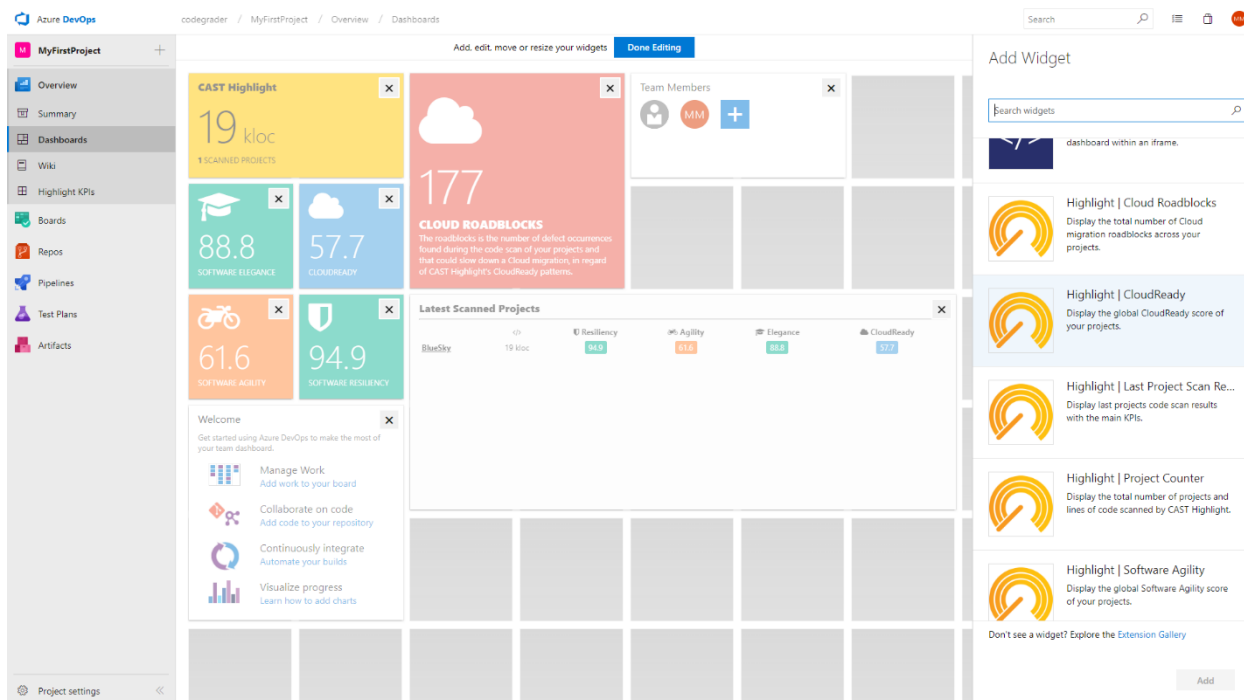
This widget displays the total number of Cloud roadblocks found during the scan of projects paired with Azure DevOps.
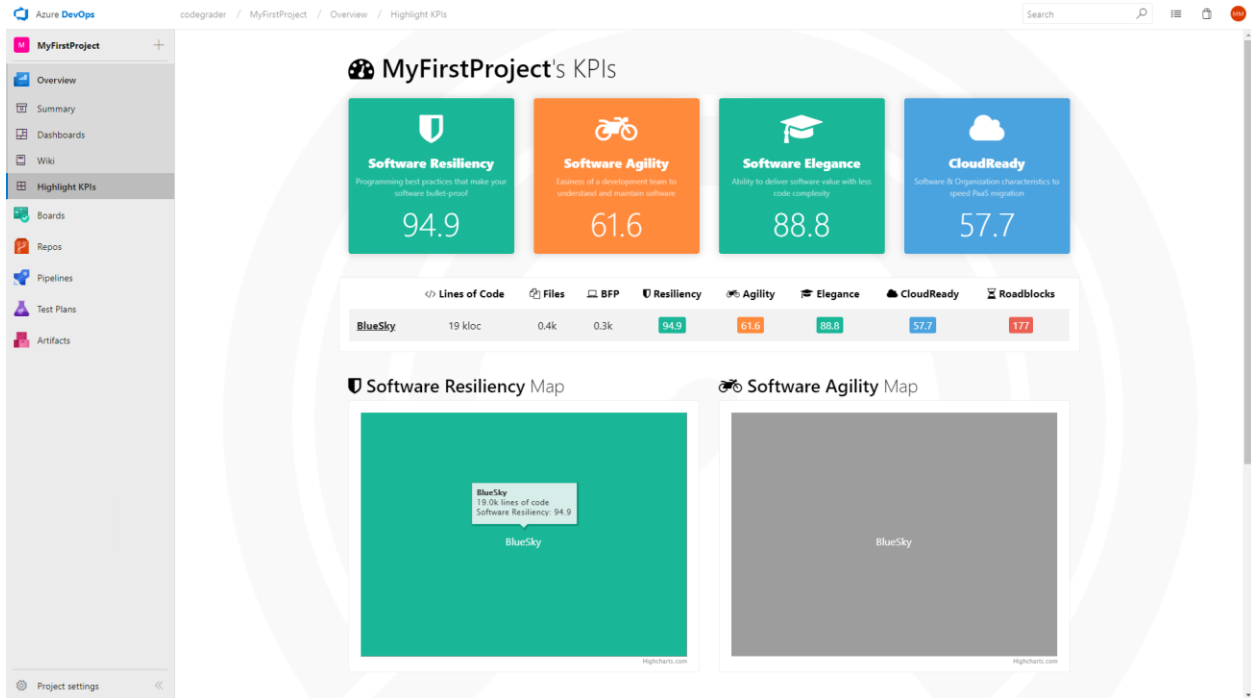
Last Project Scan Results

This widget displays all scanned projects paired with Azure DevOps and their corresponding KPIs (lines of code, software resiliency, agility, elegance and CloudReady).

As illustrated below, to add any Highlight widget to your Azure DevOps "Overview" dashboard or to a new custom dashboard, edit your dashboard, click on + and pick the widget you want to add. Then save your dashboard configuration.

In addition of the widgets detailed above, this extension comes with a Azure DevOps dashboard dedicated to your projects Highlight metrics from which you can get a quick overview on the code repositories you have scanned and paired with Azure DevOps. To access, from the sub-menu, click on Highlight KPIs.

Contact the Product team

The product team loves getting in touch with users. Any question or feedback on these Azure DevOps extensions, drop us a note at support@casthighlight.com, or leave us a message on our website.