

BLACKDUCK

Installing, Configuring, and Using the Hub Plugin for TeamCity

Version 3.0.0

This edition of the *Installing, Configuring, and Using the Hub Plugin for TeamCity* refers to version 3.0.0 of the Black Duck Hub Plugin for TeamCity.

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Please send your comments and suggestions to:

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Chapter 1: Hub TeamCity Plugin Overview

Black Duck Hub is a new risk management application designed to help you manage the logistics of using open source software in your organization.

Black Duck Hub Scanner is the software component scanning functionality in Black Duck Hub that provides an automated way to determine the set of open source software (OSS) components that make up a software application. Hub Scanner is designed to help organizations manage their use of open source binaries by identifying and cataloging OSS components to provide additional metadata such as license, vulnerability, and OSS project health for those components.

TeamCity is an open source continuous integration tool that monitors executions of repeated jobs, such as building a software project or cron jobs. TeamCity focuses on building and testing software projects continuously and monitoring execution of externally run jobs.

As a Hub and TeamCity user, the Hub TeamCity plugin enables you to:

- Run a component scan in a TeamCity job:
 - Scan multiple targets within the job workspace.
 - Create projects and releases in Black Duck Hub through the TeamCity job.
 - Associate the scanned code with the project/version in the Hub.
- After a scan is complete, the results are available on the Hub server.

Using the Hub TeamCity Plugin together with Hub Scanner lets you use TeamCity to automatically create Hub projects from your TeamCity projects.

1.1 Hub TeamCity Plugin Requirements

Software Requirements

The installation instructions in this document assume that you have the following installed and configured on your system:

- Access to Black Duck Hub 2.0 server or higher
- TeamCity 7.1 or higher (we recommend the latest LTS release)
- Maven 3
- lava SE 7
- Open Source distribution on Black Duck Hub version 2.3 or higher
- Microsoft Build version 11 or 12. Note that Visual Studio 2012 installs Microsoft Build 11, and Visual Studio 2013 installs Microsoft Build 12.
- Microsoft .NET Framework version 4.5

Chapter 1: Hub TeamCity Plugin
Overview

Note: The Hub Scanner CLI client requires Java Runtime Environment (JRE) version 1.7.0_40 or later to be installed on the computer where it is run. For Hub 3.0 versions and higher, the installation of the JRE is not required.

The TeamCity plugin is supported on the same operating systems and browsers as Black Duck Hub. For the complete listing of operating systems supported by Black Duck, refer to the *Black Duck Hardware Software Specifications*.

Network Requirements

The Hub TeamCity plugin requires internet connectivity. The machine that hosts your TeamCity server must be able to connect to the Hub server.

1.2 Supported Archive Types

The Black Duck Component Scanning can extract the following archive types:

- AR
- ARI
- CPIO
- DUMP
- TAR
- RPM
- ZIP
- 7z

Archives may optionally be compressed using any of the following compression algorithms:

- Bzip2
- Gzip
- Pack200
- XZ
- LZMA
- Snappy
- Z (compress)
- DEFLATE

Note: If you attempt to scan an individual archive file that is not a supported type, Hub Scanner finds no matches.

Tip: For additional information, refer to the Black Duck Hub online documentation.

1.3 Troubleshooting the Hub TeamCity Plugin

If an error message is generated that states *During development and testing the following errors were encountered*, use the following solutions:

- If you try to use Java 6 instead of Java 7, instead of getting an *Unsupported major:minor version* error message, the plugin sometimes throws a false *java.lang.OutOfMemoryError: Java heap space* message instead.
- If you get a message that reads *Service Unavailable*, either the Hub server can't be reached, or the request to the server is invalid. Contact your Hub server administrator.
- If you get a message that reads *Precondition failed*, the request to the server is invalid. Verify that your global configuration is correct, and verify that the job configuration is correct. If you are still getting this message after you have checked your configuration, contact Black Duck support.
- If you get a message that reads *Not Found (404) Not Found*, the request to the server is invalid. Contact Black Duck support.

Tip: After major releases of Hub, check for updated versions of your Black Duck plugins. Changes to the APIs, schema, and SDK versions may require updated versions of the integration plugins.

- If you try to use the Hub TeamCity integration, and you configure a job with a project and version, and that project already exists but the current Hub user is not assigned to it, then the following errors display:
 - In the job configuration **Project Name** field, a notification displays *This project does not exist* on the Hub Server. Clicking **Create project/version** displays a message reading *This version* may already exist. com.blackducksoftware.integration.hub.exception.BDRestException: There
 was a problem creating this Hub project. Error Code: 412.
 - If you run the build, the following displays:

Status: 412

Response: {"errorMessage":"project name already exists", "arguments": {"fieldName":"name"}, "errors":[{"errorMessage":"project name already exists", "arguments":{"fieldName":"name"}, "errorCode":"{central.constraint_violation.project_name_duplicate_not_allowed}"}], "errorCode":" {central.constraint_violation.project_name_duplicate_not_allowed}"}

Problem creating the project.

Assigning the current user to the existing project with this name resolves the issue.

Chapter 2: Installation Overview

Note: You can find TeamCity documentation at: https://www.jetbrains.com/teamcity/documentation/

2.1 Installation Prerequisites

Before you install the Hub TeamCity Plugin, ensure that:

- Your TeamCity instance is up-to-date and fully patched.
- You know the host name and port number for the Hub server.
- For Hub users, you must have the code scanner role.
- You have connectivity to the internet. The machine that hosts your TeamCity server must be able to connect to the Protex server.

Note: Hub users do not perform the installation; this is done by the TeamCity user.

2.2 Downloading and Installing the Hub TeamCity Plugin

* To download the Hub TeamCity plugin:

- 1. Navigate to https://github.com/blackducksoftware/hub-teamcity/releases.
- 2. In the **Downloads** section, download and save the hub-teamcity-<version number>.zip file to a temporary location.

* To manually install the Hub TeamCity plugin:

- Copy the hub-teamcity-<version number>.zip file you previously downloaded to the TeamCity plugins directory. In Windows, this is located at C:\ProgramData\JetBrains\TeamCity\plugins.
- 2. Restart the TeamCity server.
- 3. Check your TeamCity **Administration** > **Plugin List** to verify that the plugin is successfully installed.

* To download and install the Hub TeamCity plugin in TeamCity:

- 1. In TeamCity, click **Administration** at the upper right.
- 2. Click **Plugins List** at the bottom left.
- 3. If you have not downloaded the hub-teamcity-<version number>.zip file, click the Available

Plugins link near the top of the page. This navigates you to the **TeamCity Plugins** page. Click the **Black Duck Hub Plugins** page. From there, you can download the hub-teamcity-<version number>.zip file.

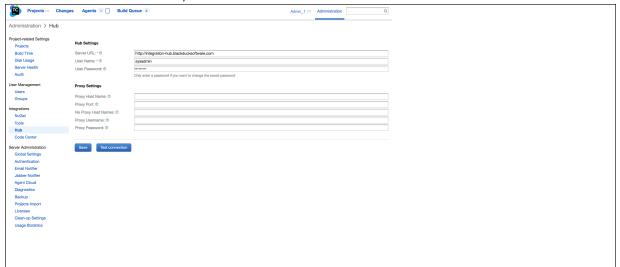
- 4. Click the **Upload Plug-in zip** link at the top left of the page. This opens a dialog box through which you can select the hub-teamcity-<version number>.zip file you previously downloaded. Select the zip file, and click **Save**.
- 5. Restart the TeamCity server.
- 6. Check your TeamCity **Administration** > **Plugin List** to verify that the plugin is successfully installed.

Chapter 3: Configuring the Hub TeamCity Plugin

Configure the Hub TeamCity plugin using the following procedure.

* To configure the Hub TeamCity plugin:

- 1. Log into the TeamCity server.
- 2. Navigate to the **Administration** section.
- 3. Under Integrations, select Hub.
- 4. Enter your credentials for the Hub server:
 - a. Server URL
 - b. User name
 - c. User password
- 5. Click **Test connection**.
- 6. If the connection is successful, click **Save**.

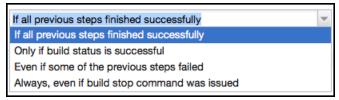


3.1 Configuring a Build Job

You can configure a build job (a new project) using the following procedure.

* To configure a build job:

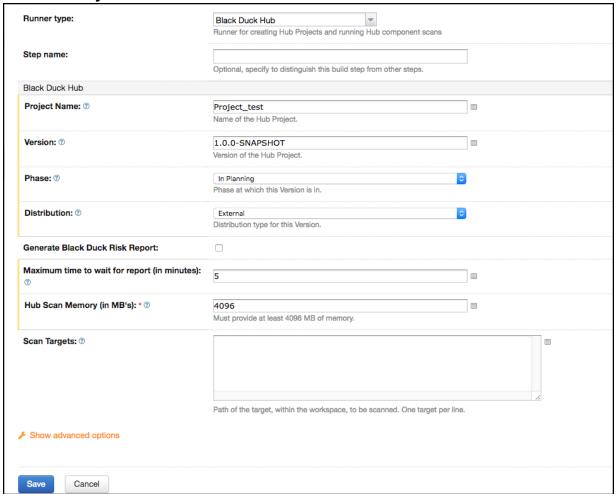
- 1. To start a new project in TeamCity:
 - a. Navigate to **Administration > Project Related Settings > Projects**.
 - b. Click Create project.
 - c. Enter a new project name.
 - d. Click Create.
 - e. Click Create build configuration.
 - f. Complete the required information.
 - g. Click VCS settings.
 - h. Click Add Build Step.
 - i. Select Black Duck Hub from the **Runner Type** drop-down list.
- 2. For an existing project:
 - a. Navigate to **Projects**.
 - b. Select and open a project.
 - c. Open the build for the selected project.
 - d. Select Edit Configuration Settings.
 - e. Click Add Build Step.
 - f. Select Black Duck Hub from the **Runner Type** drop-down list.
- 3. **Step name**: *(Optional)* Specify a step name to distinguish this step from other steps. The name specified here displays in the UI.
- 4. **Execute step**: Click the drop-down box, and select a condition for when the step (Hub Scan) should be run.



5. Provide the **Project Name**.

Note: In Hub TeamCity if you are running builds on a Windows agent, you cannot configure a project name and version using non-Windows encoding characters; for example, Chinese characters. Therefore, the project name and version cannot contain Unicode characters. This is not an issue in Linux or Mac operating systems.

6. Provide the **Project Version**.



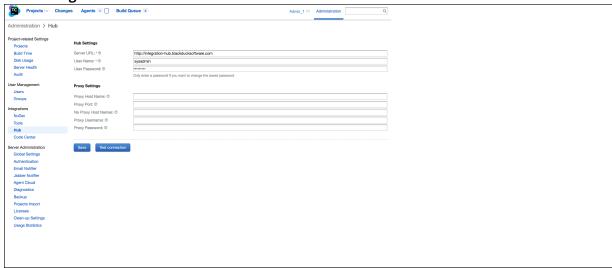
- 7. **Phase** and **Distribution**: If you are creating a new version, select the **Phase** and **Distribution** types for this version. The phase and distribution is used to create new versions; the phase and distribution of existing versions is not updated. If the project or version does not exist, it is created during the build.
- 8. **Hub Scan Memory**: Determine the memory to allocate to the Black Duck scan in megabytes; the default is 4096MB.
- 9. **Scan Targets**: type the targets to scan; enter one target per line. If no target is specified, then the entire workspace is scanned.

3.2 Configuring a Proxy

Note: Black Duck does not currently support proxies with authentication.

* To configure the TeamCity plugin to use a proxy:

- 1. Log in to TeamCity as administrator.
- 2. Go to Administration.
- 3. Select Integrations > Hub.



- 4. Under **Proxy Settings**, enter information for the proxy you would like to use:
 - Proxy Host Name
 - Proxy Port
 - **No Proxy Host Names**: enter a comma-separated list of host names that should not have requests sent through the proxy; for example, *Local/In-Network servers*.
 - Proxy Username
 - Proxy Password
- 5. Click Save.

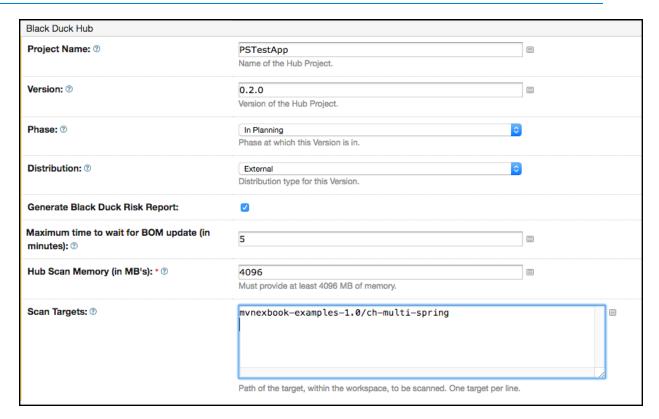
Tip: If you have a proxy configured for Internet access, but don't need it for accessing your Hub instance, add the hostname to the **No Proxy Host** list.

3.3 Configuring a Risk Report

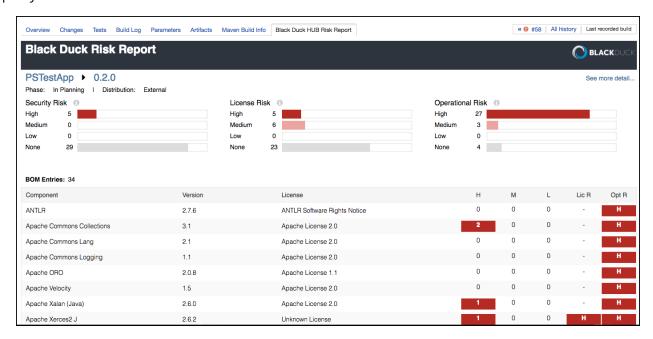
You can configure risk reports for your Hub Team City builds.

***** To configure a risk report:

- 1. Edit the job configuration.
- 2. Edit the Black Duck Hub build step.
- 3. Click the **Generate Black Duck Risk Report** check box.



- 4. When the build completes, select the build from the list.
- 5. Click the **Black Duck Hub Risk Report** tab in the build results screen. The risk report displays. Note that as of version 1.4.2, the risk report now displays the specific components that violate a policy.

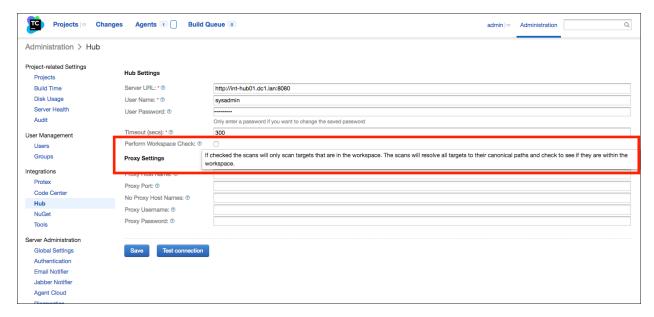


3.4 Scan Location Options

You can configure whether or not to do the workspace check. This enables you to scan outside your defined workspace.

* To configure scan options:

- 1. Navigate to **Administration** > **Hub**.
- 2. In the left-hand navigation panel, click **Integrations > Hub**.
- 3. In the **Hub Settings** panel, click the check box for the **Perform Workspace Check** option. When selected, only targets within the workspace are scanned. The scan resolves all targets to their cannonical paths, and verifies that they are within the defined workspace.

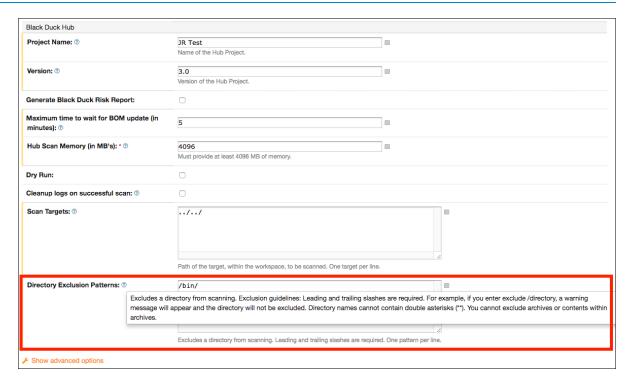


3.5 Excluding Folders During Scans

You can specify directory exclusions for scans. This can make your scanning more efficient.

To exclude directories from scans:

- 1. Navigate to Administration > Project Related Settings > Projects...
- 2. In the **Directory Exclusion Patterns** section, specify the folders to omit.
- 3. Exclusion guidelines:
 - a. Leading and trailing slashes are required.
 - b. Directory names cannot contain double asterisks (**).
 - c. You cannot exclude archives or contents within archives.

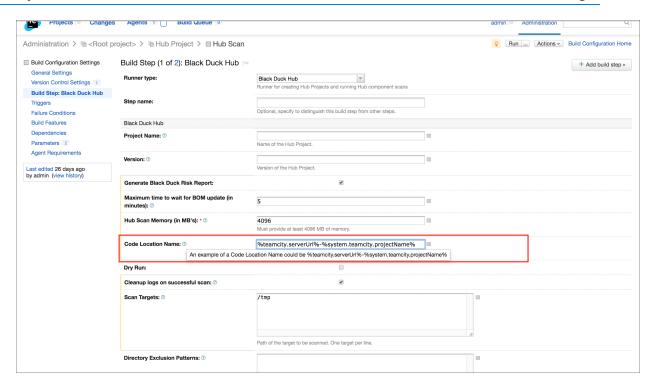


3.6 Using a Code Location Alias

The Hub TeamCity plugin now supports using a code location alias. Using the code location functionality can make your continuous integration build process smoother and easier, and allows for multiple users scanning the same code base. Continuous integration build processes have slaves or agents. Builds running on different slaves or agents have different names comprised of host name followed by path. The **Code Location** field enables you to specify a unified name, regardless of the slave or agent on which the build is running. Note that specifying a code location is optional.

* To specify a code location alias:

- 1. Navigate to **Administration** > **Project Related Settings** > **Projects**.
- 2. In the **Code Location Name** section, specify the code location as a string. This is shown in the following illustration.
- 3. Click Save.



3.7 Configuring Hub TeamCity Logging

Beginning with Hub TeamCity version 1.4.1, you can configure your logging level.

In configuring the logging level, Hub TeamCity examines the HUB LOG LEVEL environment variable.

- If this variable is set with a valid value, this value defines the logging level.
- If this variable is not set, then the default INFO logging level is used.

Note: The log level set in the configuration parameters takes precedence.

Setting the logging level

* To set the logging environment variable:

- 1. Navigate to Edit Configuration > Build Parameters > Add New Parameter.
- 2. In the **Configuration Parameters**, enter:

a. Name: HUB_LOG_LEVEL

b. Value: INFO/ERROR/...

Logging level values

You can specify the following values for the log levels.

OFF

ERROR

- WARN
- INFO
- DEBUG
- TRACE

Examples

- Warning: Includes Error, Warning
- Info: Includes Error, Warning, and Info
- Debug: Includes Error, Warning, Info, and Debug messages
- Trace: Includes Error, Warning, Info, Debug, and Trace messages

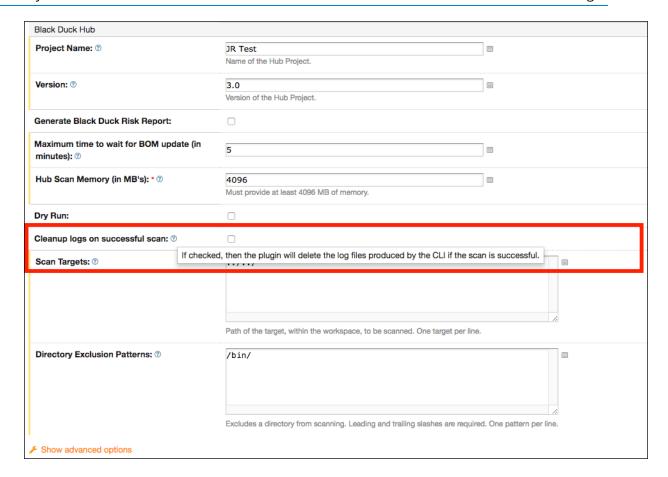
Note: The *Env Inject* plugin is required for the job level logging configuration.

3.8 Deleting Log Files

You can delete log files after scans. This conserves disk space by deleting all log files produced for successful scans.

* To delete log files:

- 1. Navigate to **Administration > Project Related Settings > Projects**.
- 2. In the **Dry Run** section, click the check box for the **Cleanup logs on successful** scan option.



Chapter 4: Using the Hub TeamCity Plugin

***** To use the TeamCity plugin to scan a job:

- 1. In TeamCity **Projects**, select **Run** for the build configuration you want to run.
- 2. Click the link next to the build number to go to the build results for that build.
- 3. To see the output of the build, navigate to the **Build Log**.
- 4. When the build is complete, the build logs are available in the workspace inside the HubScansLog folder.

Chapter 5: Hub TeamCity Plugin Release Notes

5.1 New and Changed Features

Changes in Release 3.0.0

New Features

- You can now delete log files for successful scans.
- You can now scan within or outside of your defined workspace.
- Added support for code location alias.
- Added support for Hub Common 5.4.1.
- You can now specify directories to exclude during scans.

Changes in Release 2.0.0

Issues Resolved

- Addressed an issue wherein the proxy connection tests were not always working as expected.
- Addressed an issue wherein a target scan path containing a space in the name would fail the build.

Changes in Release 1.4.3

Issues Resolved

Changing the TeamCity server path no longer causes the Hub test connection to fail.

Changes in Release 1.4.2

Issues Resolved

- Failure conditions now work as expected.
- The build number is now treated as a string instead of an integer.
- The Risk report now shows which components violate a policy.
- The CLI now requires an environment variable for the password.
- When using Firefox version 45.x and clicking **Save Configuration**, you are now directed to a **Save** status dialog box.
- When using Firefox versions 44.x and 45.x, clicking Test Connection now displays a status dialog box containing a Close button.

Changes in Release 1.4.1

New Features

The level of logging is now configurable.

Issues Resolved

- Login credentials are now encrypted in the Artifact build.properties files.
- Risk counts containing more than four digits are now fully visible.
- The risk report is now generated when a build is failed due to policy violations. If the build fails before the report has finished publishing, then the report is not generated.
- In the **Add Build Failure Condition** options, there is now an option for product-specific build failure conditions.
- Labels in the Risk Report UI are now updated.

Changes in Release 1.4.0

New Features

- Failure conditions based on the policy API support are now available:
 - You can configure the failure condition based on policy through the UI.
 - The build fails if there are any counts regarding policy violations.
 - The build logs the policy counts.
 - A version of the Hub that does not support the policy API logs that it is not compatible for the policy API.
 - The build passes even if the policy failure condition is not configured.
- Risk reports for Hub TeamCity builds are now available.

Issues Resolved

- Addressed an issue wherein project scan failure conditions now wait for the Bill of Materials to be updated.
- Addressed an issue wherein duplicate scan targets were not validated.
- Addressed an issue wherein TeamCity builds were failing if the target already existed.
- If an authenticated proxy server has been configured, then all communications from the plugin to Black Duck Hub are now done through the authenticated proxy server.

Changes in Release 1.3.1

Addressed an issue with project names containing special characters.

5.2 Known Issues for Hub TeamCity

The following are known issues for the Hub TeamCity plugin.

- If more than one process tries to perform the CLI install at the same time to the same directory (on the same machine), then the processes collide with each other and start deleting files while another creates them.
 - Workaround: When a process finds that the currently installed CLI must be updated

(downloaded for the first time or to change the current files), then it should create a .locked file (or a similar and appropriate file name), then perform the update, and remove the .locked file when the update is complete. If another process starts to perform the install, it should first check for the .locked file, if it exists, then it should wait until the .locked file is deleted before performing its check.

- After installing version 1.4.1 of the Hub TeamCity plugin, you must manually select a policy violation from the Policy Violation drop-down menu.
- TeamCity jobs may fail to simultaneously update in the CLI.

Chapter 6: Black Duck Support

If you have questions or find issues, contact Black Duck Software.

For the latest in web-based support, access the Black Duck Software Customer Support Web Site: https://www.blackducksoftware.com/support/contact-support

To access a range of informational resources, services and support, as well as access to Black Duck experts, visit the Black Duck Customer Success portal at: https://www2.blackducksoftware.com/support/customer-success

You can also contact Black Duck Support in the following ways:

• Email: support@blackducksoftware.com

• **Phone**: +1 781.891.5100, ext. 5

• Fax: +1 781.891.5145

• Standard working hours: Monday through Friday 8:00 AM to 8:00 PM EST

Note: Customers on the **Enhanced Customer Support Plan** are able to contact customer support 24 hours a day, 7 days a week to obtain Tier 1 support.

If you are reporting an issue, please include the following information to help us investigate your issue:

- Name and version of the plugin.
- Black Duck product name and version number.
- Third-party integrated product and version; for example, Artifactory, Eclipse, Jenkins, Maven, and others. For Black Duck Hub, only Jenkins, TeamCity, and Bamboo is supported.
- · lava version.
- Black Duck KnowledgeBase version, where applicable.
- Operating system and version.
- Source control management system and version.
- If possible, the log files, configuration files, and Project Object Model (POM) XML files.

6.1 Training

Black Duck training courses are available for purchase. Learn more at https://www.blackducksoftware.com/services/training.

View the full catalog of our online offerings: https://www.blackducksoftware.com/academy-catalog.

When you are ready to learn, you can log in or sign up for an account: https://www.blackducksoftware.com/academy.

6.2 Services

If you would like someone to perform Black Duck Software tasks for you, please contact the Black Duck Services group. They offer a full range of services, from planning, to implementation, to analysis. They also offer a variety of training options on all Black Duck products. Refer to https://www.blackducksoftware.com/services/ for more information.