

Kiuwan for Developers for Eclipse-based IDEs

This section shows you how to integrate the Kiuwan IDE Plug-In into Eclipse-based IDEs.



The Kiuwan Plug-In for Eclipse IDEs is available in both Analyzer and Viewer mode.

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Introduction

Kiuwan IDE Plug-In

Kiuwan allows for a true **shift-left** approach by integrating with all the main IDEs.

Kiuwan for Developers is a **plug-in for development IDEs** that facilitates and automates compliance with **security** normative, **quality** standards and **best practices** for several languages.

It provides the following benefits:

- **Security Vulnerabilities Detection** - The plug-in allows developers to detect and fix security vulnerabilities, such as Injection (SQL, XML, OS, etc), XSS, CSRF, etc., directly within their development IDEs.
- **Adoption of Security and Coding Standards** - The plug-in helps to ensure compliance to standards (CWE, OWASP, CERT-Java/C/C++, SANS-Top25, WASC, PCI-DSS, NIST, MISRA, BIZEC, ISO/IEC 25000 and ISO/IEC 9126) by automating the work. This plug-in connects with Kiuwan and harnesses the power of its quality models to prevent errors and automatically standardize the code.
- **Automatic Error Prevention** - The plug-in implements and monitors compliance to coding standards at the time the code is entered. Thus you can avoid errors and reduce the time and cost of debugging and testing activities.

The Kiuwan IDE Plug-in monitors and reports on the security, quality, and efficiency of your code at the point that it is written. This immediate feedback provides you with the opportunity to improve your code before it is delivered.

Supported Eclipse-based IDEs

The Kiuwan IDE Plug-In has been successfully tested in following IDEs and **minimum versions**:

- **Eclipse**: Luna (4.4)
- **RAD** (Rational Application Developer for WebSphere): 9.5
- **IBM Rational Developer for i Systems**: 9.5, 9.6
- **IBM Rational Developer for z Systems**: 9.5.1

For others IDEs and versions, please [contact Kiuwan Technical Support](#).



Note for Eclipse 2019-12 users (or following versions)

Due to changes in the Eclipse core, a special installation procedure is needed from Eclipse 2019-12.

Please follow these steps if your Eclipse version is equal or greater than 2019-12:

1. Open the "Window" > "Preferences" dialog.
2. Select "Install/Update" > "Available Software Sites" option.
3. Click on the "Add..." button. A new dialog will be shown with two text fields.
4. Set the "Name" field to "Eclipse Oxygen.2"
5. Set the "Location" field to "http://download.oracle.com/otn_software/oepe/library/eclipse-oxygen.2"
6. Click the "Add" button. This will add the defined software site to your list.
7. Check the "Eclipse Oxygen.2" software site in the list if it is not already checked.
8. Follow the standard installation instructions.

Requirements

The Kiuwan IDE Plug-In requires **Java 8** or above (either JDK or JRE).

You may download it from <http://www.oracle.com/technetwork/java/javase/downloads/index.html>.

Please visit [Installation and Network Configuration](#) for further information.



Note for Linux/Unix users

If you are running Eclipse under Linux/Unix you can experience problems after installing the plug-in.

That's due to some well-known problems with GTK3 use by Eclipse distributions. Please visit the following links for further information.

- http://www.jroller.com/andyl/entry/mars_on_linux
- <https://askubuntu.com/questions/761604/eclipse-not-working-in-16-04>
- https://bugs.eclipse.org/bugs/show_bug.cgi?id=430736

To solve this issue, please modify *eclipse.ini* :

Add to your *eclipse.ini*:

```
--launcher.GTK_version  
2
```

before the line:

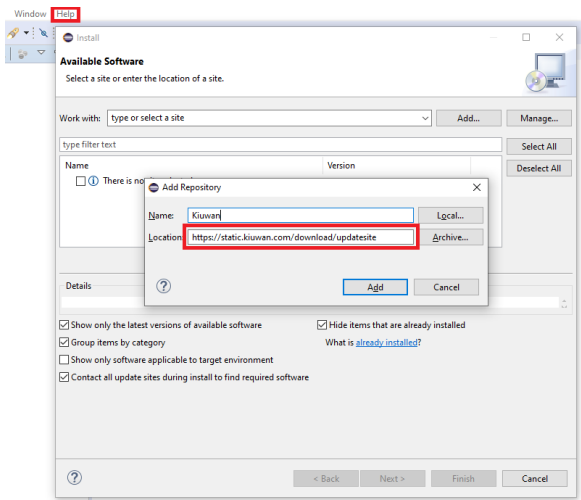
```
--launcher.appendVmargs
```

Installation

To install Kiuwan for Developers just follow the steps below:

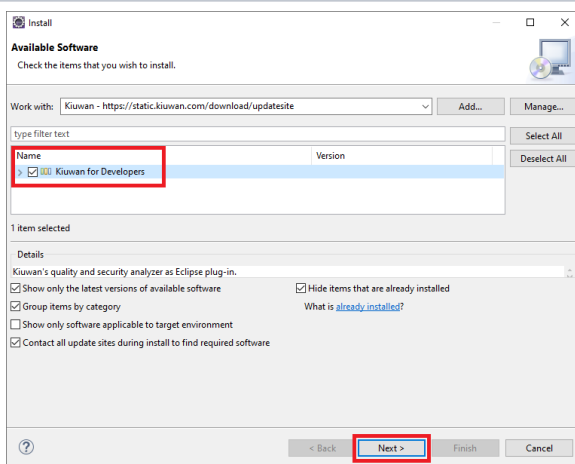
Steps	Image
1. Open Eclipse and in the main menu click H elp > I nstall New Software...	

2. Select **Add...** and type the following values:
- a. Name: **Kiwan**
 - b. Location: **https://static.kiwan.com/download/update/updatesite**



3. To save this new update site, press **Ok**. Eclipse will query our server to retrieve available features and plugins

1. The *Kiuwan for Developers* feature will appear in the list below, check it and click on **Next >**
2. Read and accept our *Terms of Use*
3. Accept the certificate used to sign our product
4. When the installation finishes and Eclipse asks to **restart** the IDE, please do so



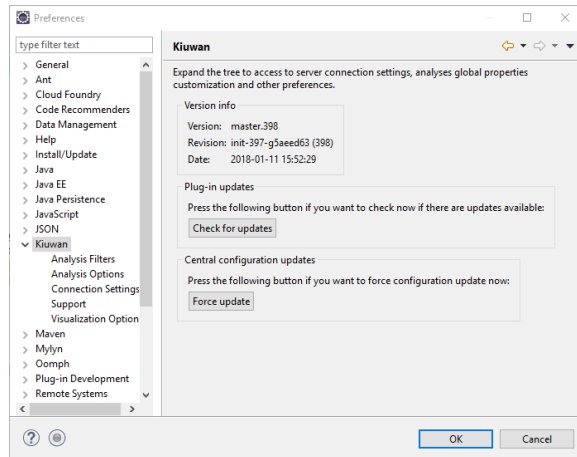
If the installation was successfully completed, Kiuwan for Developers will be up and running upon restart!

Updates

The Kiuwan IDE Plug-In checks automatically for updates on Eclipse startup and on a daily basis after that.

If you need to check it manually, you have two options:

- Through the standard Eclipse mechanisms, or
- Go to **Windows > Preferences > Kiuwan** and press the **Check for updates** button in **Plug-in updates** section.



Although the central configuration is also automatically synchronized at IDE startup, it is possible to force its update using the **Force update** button in the **Central configuration updates** section.

Configuration

Connection Settings

After installation, you need to configure the Kiuwan Plug-In to connect to the Kiuwan servers.

Steps	Image
Find the connection settings under Windows > Preferences > Kiuwan > Connection Settings. Fill in the User and Password with those of your Kiuwan Account and click Apply and Check Credentials to validate access. In case you are using a proxy, please configure Proxy Settings.	A screenshot of the Eclipse IDE's 'Preferences' dialog box, specifically the 'Kiuwan' section, with the 'Connection Settings' sub-section selected. The left sidebar shows the 'Kiuwan' tree with 'Connection Settings' highlighted. The main area has a title bar that says 'Password: Field cannot be empty'. Below this is a message: 'Fill out these fields with your user account data for this plug-in to be able to communicate with the server.' There are fields for 'Configure server URL:' (with a checkbox), 'URL:' (containing 'https://www.kiuwan.com/saas'), 'User:', and 'Password:'. Below these are 'Proxy settings' tabs for 'Local authentication' and 'Single sign-on'. The 'Local authentication' tab is active, showing fields for 'Protocol:' (set to 'http'), 'Host:', 'Port:' (set to '3128'), 'User:', 'Password:', 'Cookie policy:' (set to 'default'), and 'Favourite scheme:' (set to 'None'). At the bottom are buttons for 'Apply and check credentials', 'Restore Defaults', 'Apply', 'Apply and Close', and 'Cancel'.

Do not change the default server URL (<https://www.kiuwan.com/saas>)

- This URL is the address where the Kiuwan SaaS is located.
- This default URL should only be changed

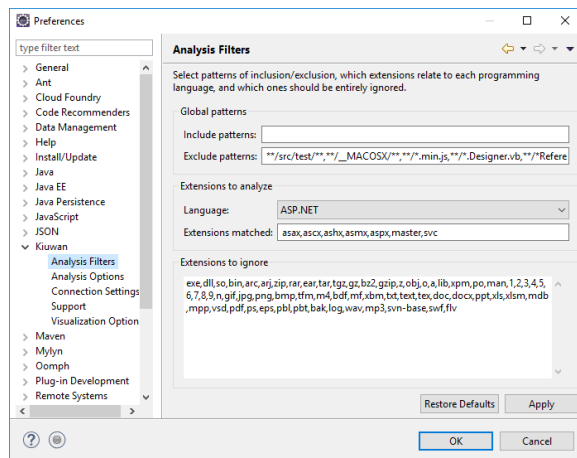
nged if you are using [Kiuwan On - Premises Monitoring](#) (KOP). In that case, you must configure the URLOf

Analysis Filters

You can configure file inclusion and exclusion patterns for the analysis. Please visit [Source Code Filters](#) for further help on this.

By default, only Exclude patterns are configured (containing a list of file patterns commonly containing not relevant sources to be analyzed).

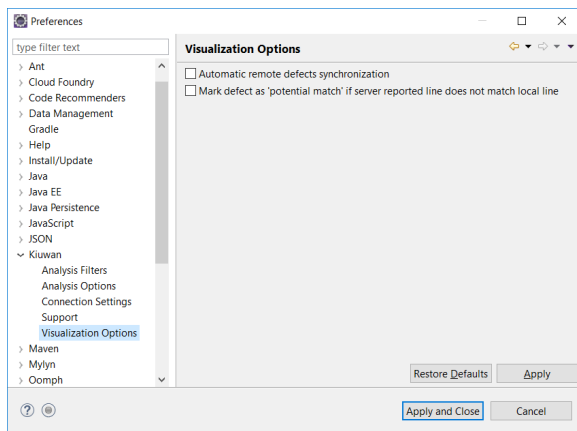
Also, you can modify the default extensions associated with available language engines.



Visualization Options

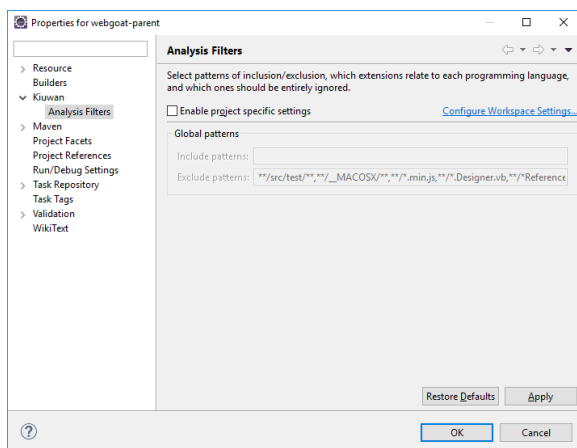
Under **Visualization Options** you can configure:

- Automatic remote defects synchronization
 - If checked, the plug-in will automatically update the remote defects list when you select a project in Eclipse (mapped to a Kiuwan application) and that defects list is empty.
- Mark defects as 'potential match' ...
 - In case the Kiuwan server reports a defect which source code text does not match the source within your Eclipse project, that defect is a "potential match"
 - If checked, the plug-in will mark those defects as "potential match"



This configuration is general to the plug-in installation, but you can configure analysis filters per-application.

Go to **Project > Properties > Kiuwan > Analysis Filters** and check **Enable project specific settings**.



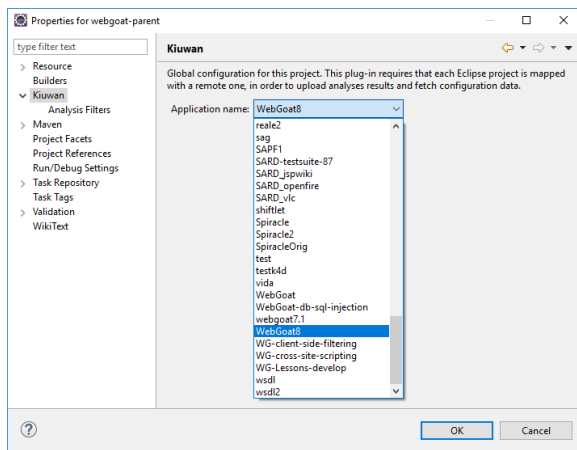
Map your Eclipse project to Kiuwan Application

After the Kiuwan IDE Plug-In is installed and the connection is configured, you are ready to map your Eclipse project to a Kiuwan application.

To map your Eclipse project to Kiuwan:

1. Go to **Project > Properties**
2. **Right-click** on your project and select **Configure > Convert to Kiuwan Project...**
3. **Right-click** on your project and select **Properties**.

The following dialog will open.



Mapping your Eclipse project to a Kiuwan Application allows executing a plug-in analysis synced to the Kiuwan Model defined at the application level.

This means that the plug-in analysis will be executed with the same Model (rules, configuration, etc.) defined for the Kiuwan application.

Please visit [Models Manager User Guide](#) for further help on Kiuwan Models.

Also, mapping your project to a Kiuwan Application allows you to download the defect list found by Kiuwan servers to Eclipse, so you can work locally on fixing those defects.

Kiuwan Plug-In execution modes

The Kiuwan Plug-In can be configured to run in different **execution modes**:

- **Manual**
 - You manually invoke the Kiuwan analysis
- **Automatic**
 - Kiuwan analysis is executed automatically upon changes in the code.

By configuring the plug-in, you can decide **when** Kiuwan will be executed and **which** files will be analyzed.

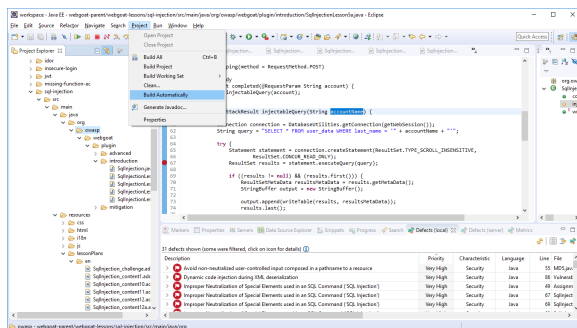


Analysis permissions

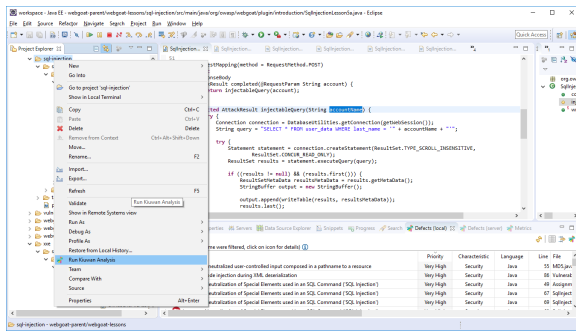
To be able to analyze in Eclipse, your Kiuwan user must have been configured with, at least, **read permission** on the Kiuwan application

Manual analysis

If your Eclipse project is **NOT** configured to "**Build Automatically**", Kiuwan will only run **on-demand**.



In this case, to manually execute the analysis, left-click on the selected item (file, folder, project) and select **Run Kiuwan Analysis**. Kiuwan will then execute the analysis on the selected item(s).



Automatic analysis

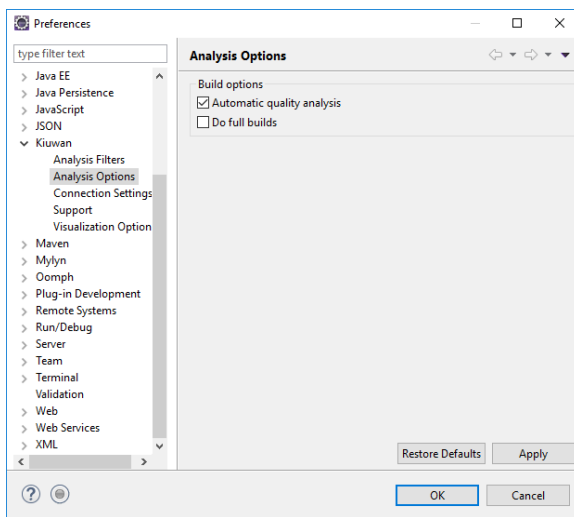
If your Eclipse project is configured to **Build Automatically**, Kiuwan will run automatically and you can configure **when** the analysis will run and on **what** files.

The Kiuwan IDE Plug-In execution mode is configured at **Window > Preferences > Kiuwan > Analysis Options**



If your Eclipse project is configured to "Build Automatically" and "Automatic quality analysis" is checked:

Kiuwan will analyze a file after you save the file. Only the selected file will be analyzed.

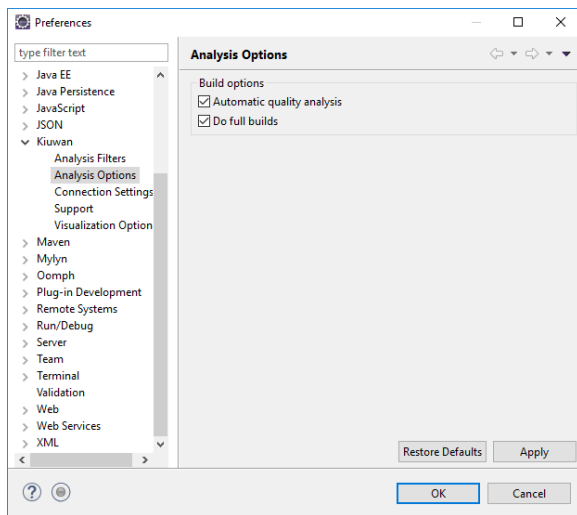


Build options - Do full builds

If your Eclipse project is configured to **Build Automatically** and **Do full builds** is checked:

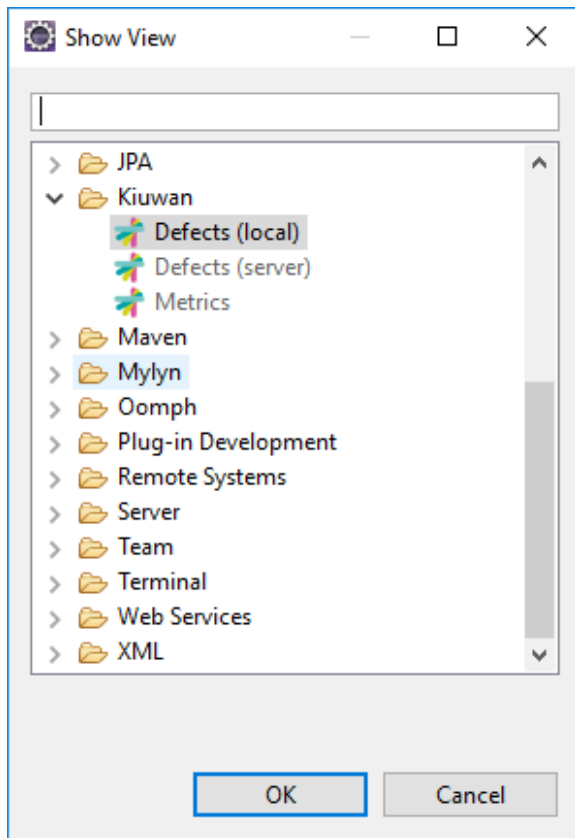
Kiuwan will analyze the complete project when you Clean the project.

Please note that this option is only available if **Automatic quality analysis** is checked.



Kiuwan IDE Plug-In Defects List

To view the analysis' defects list, go to **Window > Show View > Other > Kiuwan**



Local defects list

The **local** defects list displays defects found during **local analysis** executed within your Eclipse.

[illegible]

Double-click on a defect to open the associated file in the Eclipse editor. The cursor will be placed on the affected line.

Right-click on a defect to inspect the Rule information of a defect to better understand it. (A browser will open to display the Rule Information page. You may be asked for your Kiuwan credentials.)

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Vulnerabilities details (Source and Sink)

Security defects (i.e. vulnerabilities) are prefixed by a ➤ icon.

Clicking the > icon will open details on associated **Source** and **Sink** of the defect.

Just double-click on any of them to open source file and line.

[illegible]

Local Analysis Configuration

The Kiuwan IDE Plug-In will execute the analysis with the rules contained into the model associated to the mapped Kiuwan application.

But it also allows you to **reduce the scope of the analysis to a subset of that model.**

When you execute the local analysis on your Eclipse project, the number of defects can be quite large. If you are not going to work on all of them, you should consider reducing the analysis to let you concentrate on the most important subset of defects. The Kiuwan IDE Plug-In allows you to configure the local analysis to only report defects based on Priority, Characteristic, Language or even a subset of a file (based on file path substring)

This would allow you to concentrate on a specific set of rules or files, reducing the number of defects that appear in the list. Only those defects matching the filters will be displayed.



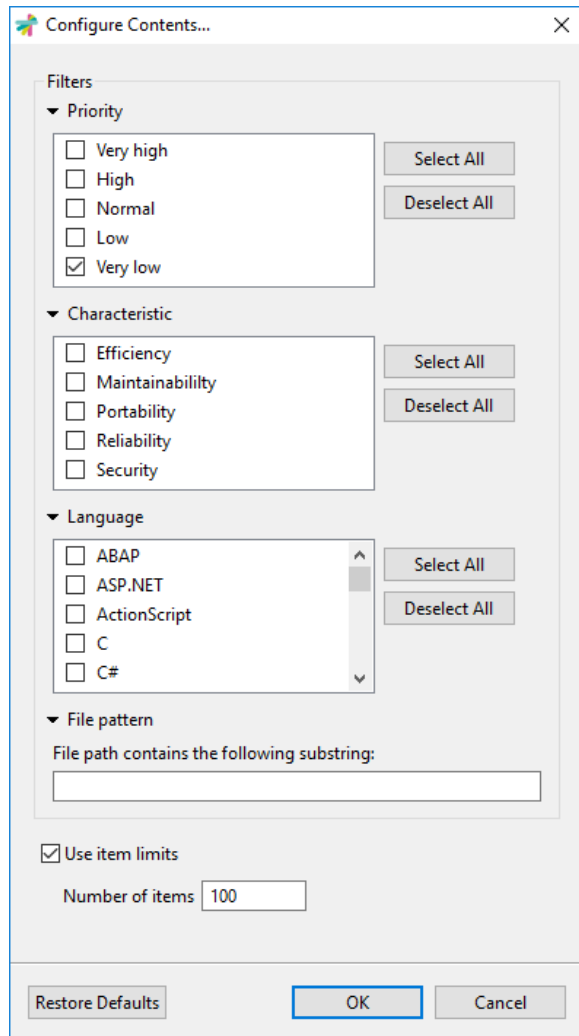
Max number of defects

An important point is to set a limit for the number of defects displayed in the list.

It's set to 100 by default. You can increase such limit, but performance of your Eclipse can be seriously damaged. Take care not to set that limit to a high number.

You can access the Local Analysis Configuration by clicking on the  icon of the Local Defects list.

Note: All the options unchecked are equivalent to all checked.



The 'Configure Contents...' dialog box is used to filter local defects. It features four main sections: Priority, Characteristic, Language, and File pattern. Each section has a list of options with checkboxes and 'Select All'/'Deselect All' buttons. The 'Use item limits' checkbox is checked, and the 'Number of items' is set to 100. The 'OK' button is highlighted with a blue border.

Section	Option	Checked
Priority	Very high	☐
	High	☐
	Normal	☐
	Low	☐
	Very low	☒
Characteristic	Efficiency	☐
	Maintainability	☐
	Portability	☐
	Reliability	☐
	Security	☐
Language	ABAP	☐
	ASP.NET	☐
	ActionScript	☐
	C	☐
	C#	☐
File pattern	File path contains the following substring:	

☒ Use item limits
Number of items:

Buttons: Restore Defaults, OK, Cancel

Configuring Defects View

Regardless of you have configured the subset of defects of K4D analysis (see above), you can further reduce the defects view by defining additional filtering conditions.

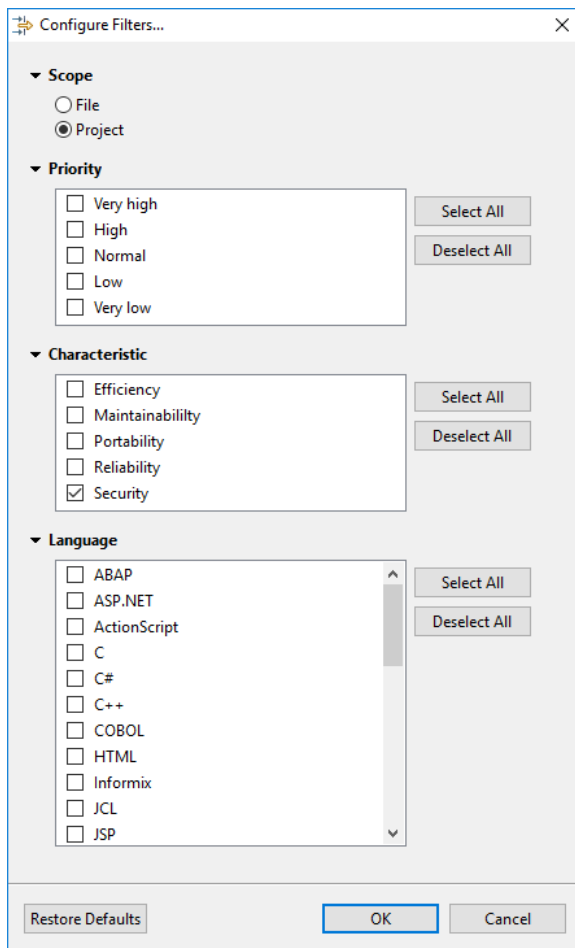
The most important filter is **Scope**:

- *File* option will only display defects of the selected file in the Eclipse source file editor
- *Project* option will display the defects of the entire project

Additionally, you can define filters based on Priority, Characteristic and Language.

Click the  icon of Local Defects list to view filters.

Note: All the unchecked options are equivalent to all the checked ones.



Server defects list



The **server defects list** displays defects of the application stored in the Kiuwan servers.

This utility allows developers to download defects found during the Kiuwan analysis of the application in a centralized environment.

For example, let's consider that at some predefined point in the application life cycle (for example, previously to commit a new release to a pre-production environment), the application is analyzed in a centralized environment.

This analysis finds some defects that must be fixed before deploying to next phase. So, you, as a developer, will be notified that you must fix some blocking defects.

When you start working on it, you need to have full and easy access to those "server" defects.

Why do you need to have access to server defects? Because it's very likely that your Local defect list is different from the Server defect list:

- Your current source code could be different from the source code of the server (you or others might have already modified that version)
- The list of defects to be fixed will be most probably a subset of all defects found during the server analysis (more on this topic below)

In these cases, you will need to have access to server defects.

[illegible]

Source of Server defects list

Depending on your needs, the **source** of server defects could be different:

- **Last baseline analysis**
 - All the defects found during last complete application analysis (i.e. the *Application Baseline*)
- **Action plan**
 - Defects included within an **Action Plan** (you can select the plan from the app's list of available action plans)
- **Audit Delivery**
 - Defects that must be fixed so the **Audit** of the delivery can be successful (you can select the delivery among the list of executed deliveries)

Please, visit [Kiuwan Life Cycle](#) documentation for a full explanation of Baseline, Delivery and Audit concepts).



Click the icon of the Server Defects list to access the Source of Server Defects.

Note: All the unchecked options are equivalent to all the checked ones.

Configure Contents...

Source

☒ Last baseline analysis

☐ Action plan SQL-Injection mitigation plan

☐ Audit delivery Last 10

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Filters

► Priority

► Characteristic

► Language

► File pattern

Order

☒ Priority ☐ Effort

Direction: Descending

☒ Use item limits

Number of items 100

Restore Defaults OK Cancel

Filter server defects to download based on Priority, Characteristic, Language or File Pattern, and to configure the source of server defects.



Max number of defects

An important point is to set a limit for the number of defects displayed in the list.

By default, it's set to 100. You can increase such limit, but the performance of Eclipse can be seriously damaged. Do not set that limit to a high number.

Configuring Filters

Besides to configure source and filters, you can further reduce the server defect list by defining additional filtering conditions.



Click the icon of the Server Defects list to define view filters.

Note: All the unchecked options are equivalent to all the checked ones.

Configure Filters...
✕

▼ Scope

☐ File
 ☒ Project

▶ Priority

▶ Characteristic

▶ Language

▼ Orphan defects

☒ Show only defects with associated local resource
 ☐ Show only defects without associated local resource
 ☐ Show all defects

▼ Muted

☐ Show only unmuted defects
 ☐ Show only muted defects
 ☒ Show all

▼ Status

☐ Show only defects without status
 ☐ Show only defects reviewed
 ☐ Show only defects to review
 ☒ Show all

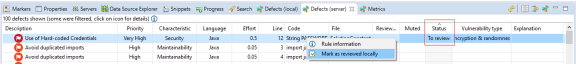
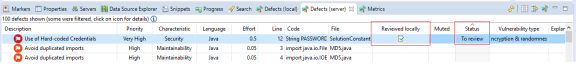
▼ Reviewed locally

☐ Show only not reviewed locally defects
 ☐ Show only reviewed locally defects
 ☒ Show all

Restore Defaults

OK

Cancel

Filter	Description
Scope	File = Only display defects of the selected file in the Eclipse source file editor Project = Display the defects of the entire project
Orphan defects	Display only those defects matching your current source code (defects with the associated local resource) or those that don't (defects without a local resource), or all of them.
Muted	Display a server defect could have been muted (for example, because it's a false positive or because it's a so special condition that must not be changed).
Life Cycle Status	To Review, Reviewed, or None When server defects are downloaded, you can filter defects based on their status.
Reviewed Locally	If you work on a to-review server defect, right-clicking on the defect you can "Mark as reviewed locally" that defect (see image below).  Then, that defect will be marked as Reviewed locally 

Additionally, you can define filters based on **Priority**, **Characteristic** and **Language**.

Support and Troubleshooting

If you experience problems with the Kiuwan plugin for Eclipse, you can read Kiuwan [Troubleshooting](#) to find a solution, or if you prefer you can collect troubleshooting information and send it to us.



Support Information

Important information for troubleshooting is scattered across several log and configuration files.

To make this process easier to you, just go to **Window > Preferences > Kiuwan > Support** and press the **Extract support data** button.

Choose the folder where you want to save this information, and submit to our technical support team the compressed file generated there.

Visit [Contact Kiuwan Technical Support](#) on how to contact us. We will address your problem as soon as possible.