

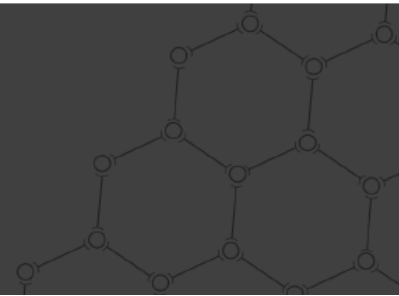


Klocwork 2020.4

Installation Guide

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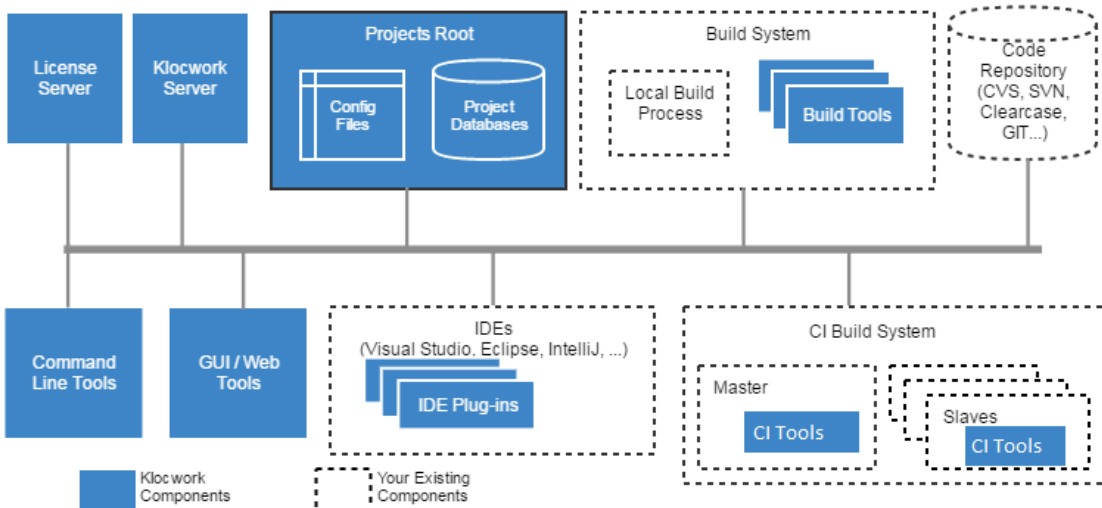
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About the Klocwork packages and components

The Klocwork installation packages and components allow you to install only the components you need on a specific machine.

Note: The Distributed Analysis package is covered separately in [Installing the Distributed Analysis package](#).



Server package components

Component	Details
License Server	A FlexNet Publisher license manager (command-line name: license). You can also use your organization's FlexNet Publisher server. Default host: localhost Default port: 27000 plus 33133
Klocwork Server	<p>An Apache Tomcat Web server (command-line name: klocwork). Provides access to Klocwork Static Code Analysis, Klocwork Code Review, and Klocwork documentation. Klocwork clients connect to the Klocwork Server for project information.</p> <p>Note: Klocwork does not support using your own Apache Tomcat server. You must use the Web server packaged with Klocwork. Default host: localhost; default port: 8080 plus 8081.</p> <p>The Klocwork Server component contains the Klocwork Database. Default host: localhost; default port: 3306.</p>
Projects root	<p>The data location for the Klocwork Servers and applications, including the project database tables, which are stored in MariaDB and Lucene databases.</p> <p>Note: The projects_root directory is not one of the components you see listed in the installation wizard, but the wizard lets you choose a location for it.</p>

Component	Details
Build tools	<p>Integration build analysis tools:</p> <ul style="list-style-type: none"> • tools for managing Klocwork projects, analysis, and access control (kwadmin and kwbuildproject) • tools to produce a build specification (kwinject, kwwrap, kwant, kwcsprojparser) • tools for running Klocwork integration build analysis (the analysis engines) • sample projects
GUI/web tools	<ul style="list-style-type: none"> • Klocwork Static Code Analysis • Klocwork Code Review • Klocwork Web API
Continuous Integration tools	<p>Klocwork's Continuous Integration (CI) capability enables your organization to identify and communicate errors faster, without waiting for nightly builds.</p> <p>Klocwork's CI tools integrate with third-party plug-ins and custom scripts for CI environments so that developers can verify the quality of source code as part of their pre-merge or post-commit processes.</p> <p>Klocwork CI build analysis tools include the following:</p> <ul style="list-style-type: none"> • tools to produce a build specification (kwinject, kwant, kwmaven, kwwrap, kwcsprojparser, kwvcprojparser, kwmaven) • command-line analysis tools (kwciagent) • tools for running Klocwork CI build analysis (the analysis engines)

Desktop analysis components

Component	Details
Command Line Tools	<p>Command-line versions of the Klocwork developer tools for C/C++, C#, and Java, which allow software developers to verify the quality of source code before they commit it to source control. Also includes Klocwork Desktop, a GUI alternative to running kwcheck.</p> <p>This component also includes the Klocwork Extensibility API for writing custom checkers.</p>
IDE Plug-ins	<ul style="list-style-type: none"> • Klocwork Desktop plug-in for Visual Studio (Visual Studio extension) • Klocwork Desktop plug-in for Eclipse • Klocwork Desktop plug-in for IntelliJ IDEA • Klocwork Desktop plug-in for Android Studio

Note: Once deployed, users can download the desktop plug-in installers from within Klocwork. See [Installing a desktop analysis plug-in](#) for more information.

Upgrading from a previous version

Klocwork provides a simple way to import your existing Klocwork projects into a new `projects_roots` directory. You can use the Klocwork portal GUI to connect to your existing Klocwork server then choose which projects you'd like to import. If you're a Klocwork Code Review user, you can also connect to your existing server to import your code reviews to Klocwork. The GUI enables a quick and painless migration to the very latest version of Klocwork.

Klocwork also provides the ability to load builds from the previous major version of Klocwork into the current version of Klocwork. For example, this means you can load Klocwork builds from any version of Klocwork 2019 through to 2019.3 into Klocwork 2020.4 without having to import or migrate data. For large organizations, this feature provides flexibility by allowing you to upgrade the Server to take advantage of improvements, while still analyzing some or all of your projects with a previous version of Klocwork. For more information, see [Cross-version support for builds](#).

We realize that no two installations are the same, and depending on your installation, you may choose to migrate your projects root directory in its entirety. This method is still supported. Both methods are described in detail in the sections below.

Import your existing projects into a new projects root

Klocwork includes a simple GUI that you can use to import projects from an existing `projects_root` to your new Klocwork installation. This allows you to migrate your data on a project-by-project basis without using the command line.

Warning: As of Klocwork 2020.1, the MISRA checkers are now included in your installation; Do not run `kwdeploy sync` on the 'misra.checkers.zip' package. If the 'misra.checkers.zip' package is in the `plugins` folder of your projects root, remove it before running `kwdeploy sync`.

Before you decide to import your projects, make sure that your current installation supports this feature.

Typically, this process involves the following steps:

1. backing up your existing `projects_root` (just to be safe)
2. installing the new Klocwork Server (either on a new machine or using a different port number) and starting the server.
3. validating your database
4. opening the portal, and using the GUI to import existing projects to the new installation
5. after testing your new installation, uninstalling the existing server and removing the old `projects_root`

Before you begin

The import process involves running your existing Klocwork installation (and `projects_root`) and your new Klocwork installation (with clean `projects_root`) concurrently. Once you've installed the new server, you must import any projects from the existing `projects_root` into the clean `projects_root`.

Remember that you cannot run two Klocwork servers on the same machine without specifying unique port numbers. If you plan on installing the new Klocwork installation on the same machine, it's a good idea to stop and restart your existing server using a different port number. This will allow you to maintain the existing port number for your new installation.

If you are moving to a new major release of the software, ensure that you have a compatible license, as each major release requires a new Klocwork license. See [Licensing](#) for more information.

Also, FlexNet Publisher prevents more than one instance of the vendor daemon from running on each machine, which means that you cannot run two License Servers on one host. In this scenario, you need to run one License Server and point both Klocwork installations to that License Server. See [Licensing with multiple projects_root directories](#) for more information.

Both the Klocwork and Database servers require fully qualified domain names or IP addresses assigned in order to be accessible from the target server host during the import process. Don't use *localhost*.

Note: You must have Projects root admin access in order to perform the import operation.

Supported upgrade paths to versions of Klocwork that support project import

Find your current version in the chart below and follow the appropriate upgrade path. Once you've upgraded to the correct version of Klocwork, you can import your existing projects from there.

The chart below is accurate for the latest current release. Rogue Wave is also here to help! If you need to move from an older release, you can contact [Static Code Analysis Professional Services](#) to discuss assistance via a services engagement.

If you're using Klocwork version	Then import is supported to the following version
2020.3 latest	Klocwork 2020.4 latest
2020.2 latest	Klocwork 2020.4 latest
2020.1 latest	Klocwork 2020.4 latest
2019.3 latest	Klocwork 2020.4 latest
2019.2 latest	Klocwork 2020.4 latest
2019.1 latest	Klocwork 2020.4 latest
2019 latest	Klocwork 2020.4 latest
2018.3 latest	Klocwork 2020.1 latest --> 2020.4 latest

Interoperability between releases

To take advantage of the latest improvements in Klocwork, we always recommend you upgrade your Server, Build, and Desktop Analysis plug-ins to the latest version of the product. Klocwork Server and Build Tools are compatible with the Desktop Analysis plug-ins within each major release.

Klocwork also provides the ability to load builds from the previous major version of Klocwork into the current version of Klocwork. For example, this means you can load Klocwork builds from any version of Klocwork 2019 into Klocwork 2020.4 without having to import or migrate data. For more information, see [Cross-version support for builds](#).

If your current Klocwork server version does not meet the version requirements for importing projects, upgrade your existing version of Klocwork to a supported service release or version. Next, install the latest version of Klocwork. After you've installed the latest version of Klocwork, you can use it to connect to your existing Klocwork server and import your projects. Follow the steps described below to import your projects.

Install the Klocwork Server package

Install the Klocwork 2020.4 Server package. For instructions, see [Installing Klocwork](#).

Be sure to copy your license file to `<projects_root>/licenses`.

Note: See [Licensing](#) for information about options.

Start the server

Once you've installed the new version of Klocwork, start the servers. Each installation of Klocwork requires you to specify a unique hostname and port number combination.

You can specify the unique hostname and port number combination either at startup, or during the installation process. See, [Managing the Klocwork Servers](#) for more information.

Validate your database (mandatory)

dbvalidate is a tool that checks the consistency of data in your database. Running this tool is mandatory, so that any errors in your database can be corrected *before* you migrate or import. Use the version of the dbvalidate tool that matches your installed version of software (that is, the version that matches your projects_root directory).

Note: The Database Server from your old installation must be running to validate the database. The Database Server is listed as a separate service from the Klocwork Server, so ensure that it is running.

Run the following command, for example:

```
java -jar <server_install>/class/dbvalidate.jar --projects-root <projects_root>
```

where

- <server_install> is your installation directory
- <projects_root> specifies the location of the old projects root you want to validate

Example

```
java -jar /local/tools/klocwork/server/class/dbvalidate.jar --projects-root /local/tools/klocwork/server/projects_root
```

The dbvalidate tool will report any errors between the "validation started" and "validation finished" lines:

```
Wed Jun 01 07:53:58 CDT 2018 kw_central database (version: 95) validation started
<detected errors appear here>
Wed Jun 01 07:54:28 CDT 2018 Database validation finished.
```

- If **Errors** are displayed, please open a support ticket so that we can correct the error prior to import or migration.
- If no errors are displayed, your database was successfully validated.

You can also run dbvalidate with the `--rebuildIndex=true` option; This enables you to re-create the lucene index for the specified project, which often allows you to decrease the size of the index.

Important: Make sure you back up your lucene index folder before running dbvalidate with the `--rebuildIndex=true` option.

For example, you can run the following:

```
java -cp dbvalidate.jar com.klocwork.dbvalidate.Cleanup203 --projects-root <projects_root_folder> --project <project_name> --rebuildIndex=true
```

Log in to Klocwork Static Code Analysis

After starting the Klocwork servers, Klocwork Static Code Analysis is accessible from a browser using the URL of the Klocwork server hostname and the Klocwork server port chosen during the install (for example, server21:8080). By default, the person who installed Klocwork is set as the Klocwork administrator, and is given the Projects root admin role. Initially, the Basic Authentication access control method is used, so no password is needed to log in. For example, if the user account used during the installation was 'jsmith', to log in to Static Code Analysis with the administrator role, use the credentials:

```
username: jsmith
password: <empty>
```

For more details on security and authentication methods, see [Security and permissions](#).

Import your projects and server settings

With the new Klocwork Server installed and the portal up and running, you can import server settings and projects from your existing Klocwork installation.

When you import server settings from the existing source server, all global permission settings are imported along with the permission settings for only those projects that exist on the destination server. In other words, if you import Server A's settings to Server B, then you import a project from Server A to Server B, any permission settings that are specific to project A will not be carried over to Server B. To carry forward project A's project-specific permission settings, you must re-import the server settings after performing the import operation.

When importing server settings from a source Server A to target Server B, the following also applies:

- Authentication settings from source Server A overwrite the authentication settings on target Server B.
- For roles that exist on both servers, the role permissions for source Server A overwrite the role permissions on target Server B.
- Roles and their associated permissions that only existed on the source Server A are copied to the target Server B.
- Roles that only exist on target Server B are not modified; their permissions stay the same.

Important: In cases where a project contains custom settings, you must re-import your server settings after performing a project import.

Note also that when importing a `projects_root` that contains a large number of issues and builds, your new `projects_root` may increase in size.

Importing your existing projects

1. In the Klocwork portal, click Klocwork Static Code Analysis and log in to the product as the Projects root admin user.
2. Click the *Projects* tab.

If this is your first time using the installation, click the **Import settings or projects** button.

If you've already created a project or imported a project, click the **Import** button.

3. In the *Klocwork server connection* dialog, specify the log in and connection information for your existing Klocwork installation (the installation from which you want to import). Specify:
 - the URL of the existing server, for example: `http://server21:8082`
 - your user name. **Note:** you must have Projects root admin rights in order connect to the server and import your projects.
 - your password (if required)

4. Click **Import server configuration** to import the existing server's configuration settings. This includes authentication configuration settings, permissions, custom metrics, reports definitions, and e-mail subscription settings.

Note: If you import authentication settings, the system may log you out as your credentials may no longer be valid. If this happens, log in using the Admin credentials you just imported.

5. Click **List Projects** to see a list of projects in your existing `projects_root`.
6. In the **Choose projects to import** dialog, select the project(s) that you want to import to your new `projects_root`.
7. Click **Import**. The *Import status* dialog will display the status of the project import, while an import status message will appear at the top of the Projects tab.

Any project that imported successfully will appear in your projects list.

Note: During the import process, while projects are actively being imported, issue information in the Projects view may not accurately reflect the data in the source project. Information in

the Projects view will be updated as soon as the import operation has completed. Check the import status indicator for progress information.

8. Click **Import server configuration** again to import any project-specific configuration settings. This is a mandatory step, since any project-specific configuration settings will be lost if you do not re-import the server settings.
9. For each imported project, click **Permissions** and check that the permissions are correct for each project.

It is important to verify the permissions for each project since at import time. You should repeat this process after each import operation, and you must be careful to re-import the server settings for each source server that you import from.

Note: If you are running Windows in a 32-bit environment and you previously modified the memory allocation file located at `<old_Klocwork_install>/config/java_wrappers_memory.conf`, verify that you still need those modifications and make the same changes to `java_wrappers_memory.conf` in the new installation.

Use the Web API to import your projects

You can use the Klocwork Web API to import your projects on the command line. The Web API requires Web API access permissions. By default, the Project admin role and the Projects root admin roles have access to the Web API. The following example shows a curl script to import a given project:

```
curl --data "action=import_project&user=myself&project=my_project&sourceURL=
http://oldserver:8080&sourceAdmin=user&sourcePassword=pwd"
http://localhost.mycompany.com:8080/review/api
```

where:

- *project* is the name of the project you want to import.
- *sourceURL* is the URL of the existing, source Klocwork Server.
- *sourceAdmin* is the user id of the source Klocwork Server administrator (must have Projects root admin access).
- *sourcePassword* is the administrator's password.

To return a list of all projects in the source projects_root folder, run the following command:

```
curl --data "action=projects&user=myself&"
http://localhost.mycompany.com:8080/review/api
```

You can also use the Web API to import your server configuration settings:

```
curl --data "action=import_server_configuration&user=myself&sourceURL=
http://oldserver:8080&sourceAdmin=user&sourcePassword=pwd"
http://localhost.mycompany.com:8080/review/api
```

Typically these operations are scripted using a language such as Python. See the [Klocwork Web API cookbook](#) for examples of scripted curl calls using Python.

Import taxonomy file(s)

If you imported a custom taxonomy in a previous release, you need to re-import the new taxonomy file to pick up changes. See [What's new](#) for a list of changes to the taxonomies.

Import your code reviews

You can import your existing code reviews into your new projects root.

To import your existing Klocwork Inspect code reviews:

Note: Before importing code review data, you must have the equivalent project in your local projects root. Importing code review data will overwrite any existing code review data in the current `projects_root` folder.

1. In the Klocwork Product Portal, click **Code Review**.
2. Click **Settings**, then in the left pane, click **Import**.
3. Click **Import code reviews**, then specify the URL of the source Klocwork server, the user ID of the Klocwork administrator for the source projects root, and the password (if required).
4. Select the projects that you want to import, then click **Import**.

To import your existing Klocwork Code Review or Cahoots code reviews:

Note: Klocwork Code Review does not organize code reviews by project. When you import existing code reviews from your Code Review server, you must specify the code reviews by tag.

1. In the Klocwork Product Portal, click **Code Review**.
2. Click **Settings**, then in the left pane, click **Import**.
3. Click **Import code reviews**, then specify the URL of the source Klocwork Code Review server, the user ID of the Klocwork administrator for the source projects root, and the password (if required).
4. Select the local project into which you want to import the code reviews.
5. In the left pane, select the tags that you want to import.
6. Click **Assign** to assign the tags to the selected project.
7. Click **Import** to import the code reviews.

Test your upgrade

Ensure that you can see your projects and builds in [Klocwork Static Code Analysis](#).

If you installed a new license file, ensure that it was installed correctly by [checking that the number of licenses is correct](#).

Go live with your new installation

Once you're satisfied that your new installation is valid, and that your existing projects were imported correctly, it's time to go live with your new installation.

If you've chosen a new and unique port number for your new installation, then you can go ahead and communicate that information to your users.

If you'd like to reuse your existing port number (so that users don't have to update their local settings) then you'll need to stop and restart all of your Klocwork servers, taking care to specify the existing server port number for your new installation.

Upgrade all Desktop Analysis plug-ins

To take advantage of the latest improvements in Klocwork, we always recommend you upgrade your Desktop Analysis plug-ins to the latest version of the product.

Your users can reinstall their Klocwork Desktop Analysis plug-ins themselves by downloading the appropriate plug-ins from the Klocwork portal once it is up and running. See [Downloading and deploying the desktop analysis plug-ins](#) on page 25 for instructions on how to download and deploy the plug-ins to the server.

Note: When upgrading to the Klocwork extension for Visual Studio, any analysis results data generated from the previous version of the plug-in will be removed. Therefore, any local defect citation information not already synchronized with the server will be lost. You can re-analyze your solution(s) to get the analysis results with the new plug-in.

Before your first integration build analysis using Klocwork 2020.4

New releases of Klocwork normally have changes to the checker configuration to keep up with current events and respond to customer requests. These changes may mean that your checker configuration from the previous release isn't the same in the new release.

Make sure that you have the right checkers enabled to match your old configuration. See [What's New](#) for a list of updated checkers, then make any changes to your [checker configuration](#). After you're satisfied with your configuration, re-generate your [build specification](#) to capture the latest changes and perform your integration build analysis on unmodified source code.

Note: If you've already run your first Klocwork 2020.4 analysis and you're missing some issues or status changes, delete that build, reconfigure your checkers, and run a new analysis.

We recommend running your final pre-upgrade integration build analysis and your first Klocwork 2020.4 analysis on identical source code, and then [comparing the two builds](#). This allows you to assess changes in the analysis engine. For details on improved, added, and removed checkers in this version, see [What's New](#).

Migrate your projects_root directory

You can migrate your `projects_root` directory and configuration settings over to your new Klocwork installation by using the `kwservice --migrate` command. Typically, this process involves:

- stopping your server and backing up your existing projects root folder and configuration settings
- installing the new Klocwork server package by specifying the existing projects root folder, server, and port settings
- re-validating your database
- testing your installation

Warning: As of Klocwork 2020.1, the MISRA checkers are now included in your installation; Do not run `kwdeploy sync` on the 'misra.checkers.zip' package. If the 'misra.checkers.zip' package is in the `plugins` folder of your projects root, remove it before running `kwdeploy sync`.

Before you begin

We recommend that you **make a copy of your projects_root directory** and migrate the copy. This way, users can continue to use Klocwork Static Code Analysis, though they should be instructed not to make any changes, such as changing an issue's status.

To reduce the amount of time required for migration, we also **strongly recommend that you delete unneeded projects and failed builds before migration**, as detailed in the procedure that follows.

If you are moving to a new major release of the software, ensure that you have a compatible license, as each major release requires a new Klocwork license. See [Licensing](#) for more information.

If you do not use the default server settings, you will **need to specify your custom settings prior to beginning the upgrade**. Otherwise, during the installation these settings will revert back to the default settings. If you forget, you can always go in and change the settings for each of your environments after you have completed upgrading.

To avoid losing issues, status changes or comments from the last release in your first Klocwork 2020.4 analysis run, make sure you read [Before your first Klocwork 2020.4 integration build analysis](#).

Tomcat server configuration: Klocwork Static Code Analysis's Tomcat server configuration (`<projects_root>/tomcat/conf/server.template`) will be backed up and replaced during migration. The backup file will be named `server.template.bak` or `server.template.bak_X` (where X is a number). If your `server.template` had modifications from the Klocwork Static Code Analysis defaults, you can copy them from the backup, ensuring that `maxPostSize` is set to `-1`, and re-start the Klocwork Static Code Analysis server.

Supported upgrade paths

Find your current version in the chart below and follow the appropriate upgrade path. If you need to upgrade from earlier versions of the product that aren't listed in the table below, use the import method. See [Import your existing projects into a new projects_root](#) for more information.

Rogue Wave is also here to help! If you need to move from an older release, you can contact [Static Code Analysis Professional Services](#) to discuss assistance via a services engagement.

If you're using Klocwork version	Then follow this upgrade path
2020.3 latest	Klocwork 2020.4 latest
2020.2 latest	Klocwork 2020.4 latest
2020.1 latest	Klocwork 2020.4 latest
2019.3 latest	Klocwork 2020.4 latest
2019.2 latest	Klocwork 2020.4 latest
2019.1 latest	Klocwork 2020.4 latest
2019 latest	Klocwork 2020.4 latest
2018.3 latest	Klocwork 2020.1 latest --> 2020.4 latest

Interoperability between releases

To take advantage of the latest improvements in Klocwork, we always recommend you upgrade your Server, Build, and Desktop Analysis plug-ins to the latest version of the product. Klocwork Server and Build Tools are compatible with the Desktop Analysis plug-ins within each major release.

Klocwork also provides the ability to load builds from the previous major version of Klocwork into the current version of Klocwork. For example, this means you can load Klocwork builds from any version of Klocwork 2019 into Klocwork 2020.4 without having to import or migrate data. For more information, see [Cross-version support for builds](#).

Running two versions of the Klocwork Servers

If you will be running two sets of the Klocwork Servers, for example to test the Klocwork 2020.4 Servers while users continue to access your existing servers, you must run them on different `projects_root` directories (and [set the ports appropriately](#)).

Prepare to upgrade

For details on starting and stopping the servers, see [Starting the Klocwork Servers](#) and [Stopping the Klocwork Servers](#).

To prepare to upgrade:

1. For the `projects_root` you want to migrate, run the following command:

```
kwservice --projects-root <projects_root> check
```

2. Make note of what servers are running and what ports they are running on. After migration to the new version of Klocwork, the servers will be running on these ports.
3. Stop the servers.
4. To create a restore point, perform a complete backup of any `projects_root` directories you want to migrate. After you upgrade Klocwork, you cannot undo the upgrade. For information, see [Backing up Klocwork data](#).
5. If you customized any configuration files (such as `kwmysql.ini` or `kwfilter.conf`), back up the `<server_install>/config` directory.
6. Start the servers.
7. **IMPORTANT:** To reduce the time required to migrate your Klocwork data, we **strongly recommend** that you:

- Delete any projects from the previous version that you do not need to migrate. See [kwadmin delete-project](#).
- Delete any failed project builds from the previous version. You cannot resume a build that failed in a previous release after migrating the project as described in this article. However, you may be able to load the build from tables. See [kwadmin delete-build](#).

8. Stop the servers.

9. (Optional) To create a second restore point, back up the `projects_root` directories you have prepared for migration.

10. Store the existing Klocwork license in a safe place.

11. To prevent confusion, delete the old Klocwork logs from `<projects_root>/logs`.

Install the Klocwork Server package

Install the Klocwork 2020.4 Server package. For instructions, see [Installing Klocwork](#).

Validate your database (mandatory)

`dbvalidate` is a tool that checks the consistency of data in your database. Running this tool is mandatory, so that any errors in your database can be corrected *before* you migrate or import. Use the version of the `dbvalidate` tool that matches your installed version of software (that is, the version that matches your `projects_root` directory).

Note: The Database Server from your old installation must be running to validate the database. The Database Server is listed as a separate service from the Klocwork Server, so ensure that it is running.

Run the following command, for example:

```
java -jar <server_install>/class/dbvalidate.jar --projects-root <projects_root>
```

where

- `<server_install>` is your installation directory
- `<projects_root>` specifies the location of the old projects root you want to validate

Example

```
java -jar /local/tools/klocwork/server/class/dbvalidate.jar --projects-root /local/tools/klocwork/server/projects_root
```

The `dbvalidate` tool will report any errors between the "validation started" and "validation finished" lines:

```
Wed Jun 01 07:53:58 CDT 2018 kw_central database (version: 95) validation started
<detected errors appear here>
Wed Jun 01 07:54:28 CDT 2018 Database validation finished.
```

- If **Errors** are displayed, please open a support ticket so that we can correct the error prior to import or migration.
- If no errors are displayed, your database was successfully validated.

You can also run `dbvalidate` with the `--rebuildIndex=true` option; This enables you to re-create the lucene index for the specified project, which often allows you to decrease the size of the index.

Important: Make sure you back up your lucene index folder before running `dbvalidate` with the `--rebuildIndex=true` option.

For example, you can run the following:

```
java -cp dbvalidate.jar com.klocwork.dbvalidate.Cleanup203 --projects-root <projects_root_folder> --project <project_name> --rebuildIndex=true
```

Put your new license in the correct directory

If you received a new license file from Customer Support, copy it to `<projects_root>/licenses`.

Note: See [Customizing licensing](#) for information on licensing options.

Migrate your Klocwork data

To migrate a `projects_root`, run the following command from `<Klocwork_2020.4_Server_install>/bin`:

```
kwservice --projects-root <old_projects_root> start --migrate
```

If the `projects_root` migrates successfully, the Klocwork Servers start on the port numbers picked up from the migrated `projects_root`.

Notes:

- If you imported a custom taxonomy in a previous release, you need to re-import the new taxonomy file to pick up changes. See [What's new](#) for a list of changes to the taxonomies.
- If you will be running the Klocwork Servers as Windows services, after starting the servers with the `--migrate` option, stop the servers with `kwservice --projects-root <migrated_projects_root> stop`. Then start the Klocwork 2020.4 services in Windows Services Administration.
- You can manage the Klocwork servers remotely on Unix with SSH, or on Windows with Windows Services administration. Otherwise, you must issue the start, restart, and stop commands locally.
- The above command converts all external configuration files in the `projects_root` to UTF-8. All external configuration files must be UTF-8 encoded if they contain multibyte characters (for example, Japanese). External configuration files are those listed in [Configuration files you can edit](#).

If you customized configuration or metrics files

- **If you modified the MariaDB configuration file** located at `<old_Klocwork_install>/config/kwmysql.ini`, make the same changes to `kwmysql.ini` in the new installation.

Important: Do not copy your customized configuration files into the new Klocwork installation. Instead, make the same customizations to the newly installed configuration files.

- If you modified the compiler mapping file located at `<old_Klocwork_install>/config/kwfilter.conf`

Make the same changes to `kwfilter.conf` in the new installation.

Important: Do not copy your customized configuration files into the new Klocwork installation. Instead, make the same customizations to the newly installed configuration files.

- **If you added custom metrics reports to Klocwork Static Code Analysis**, you need to edit the custom metrics report configuration file (`metrics.xml`). The `metrics.xml` file is located at:
`<projects_root>/config`
- If you are running Windows in a 32-bit environment and you modified the memory allocation file located at `<old_Klocwork_install>/config/java_wrappers_memory.conf`, verify that you still need these modifications, and make the same changes to `java_wrappers_memory.conf` in the new installation.

Notes

- The `metrics.xml` file applies to a `projects_root` directory, not to an entire Klocwork installation. Therefore, if you have multiple `projects_root` directories, you will need to copy your customized `metrics.xml` file to each of your `projects_roots`.
- You need to restart the Klocwork Server after customizing the `metrics.xml` file.

Test your upgrade

Ensure that you can see your projects and builds in [Klocwork Static Code Analysis](#).

If you installed a new license file, ensure that it was installed correctly by [checking that the number of licenses is correct](#).

Upgrade all Desktop Analysis plug-ins

To take advantage of the latest improvements in Klocwork, we always recommend you upgrade your Desktop Analysis plug-ins to the latest version of the product.

Your users can reinstall their Klocwork Desktop Analysis plug-ins themselves by downloading the appropriate plug-ins from the Klocwork portal once it is up and running. See [Downloading and deploying the desktop analysis plug-ins](#) on page 25 for instructions on how to download and deploy the plug-ins to the server.

Note: When upgrading to the Klocwork extension for Visual Studio, any analysis results data generated from the previous version of the plug-in will be removed. Therefore, any local defect citation information not already synchronized with the server will be lost. You can re-analyze your solution(s) to get the analysis results with the new plug-in.

Repeat upgrade steps on other projects_root directories

To migrate another projects_root, carry out the steps in this chapter again (except for installing Klocwork).

Summary of upgrade steps for second or later projects_root directory:

1. Prepare to upgrade.
2. Run:

```
kwservice --projects-root <projects_root> start --migrate
```

3. Re-create any compiler configuration files you had customized.
4. If you added custom metrics reports to Klocwork Static Code Analysis, edit the custom metrics report configuration file (metrics.xml).
5. Test your upgrade.

Before your first integration build analysis using Klocwork 2020.4

New releases of Klocwork normally have changes to the checker configuration to keep up with current events and respond to customer requests. These changes may mean that your checker configuration from the previous release isn't the same in the new release.

Make sure that you have the right checkers enabled to match your old configuration. See [What's New](#) for a list of updated checkers, then make any changes to your [checker configuration](#). After you're satisfied with your configuration, re-generate your [build specification](#) to capture the latest changes and perform your integration build analysis on unmodified source code.

Note: If you've already run your first Klocwork 2020.4 analysis and you're missing some issues or status changes, delete that build, reconfigure your checkers, and run a new analysis.

We recommend running your final pre-upgrade integration build analysis and your first Klocwork 2020.4 analysis on identical source code, and then [comparing the two builds](#). This allows you to assess changes in the analysis engine. For details on improved, added, and removed checkers in this version, see [What's New](#).

Installing Klocwork

Follow the steps described below to install the Klocwork Server, build tools, and desktop analysis plug-ins. For help, see [Troubleshooting your installation](#) on page 40 below.

Solaris and AIX support

Downloads for Solaris and AIX are now by request. To obtain Solaris or AIX product downloads, please contact [Klocwork Customer Support](#).

Solaris installation packages, build tools, and desktop tools are available for Klocwork release 2020.1. Downloads are not available for later releases.

Installing the Klocwork Server package on Windows

This page provides instructions for installing the Klocwork Server package using the installation wizard. For instructions on unattended installation of both the Klocwork Server and desktop analysis plug-ins, see [Unattended installation on Windows](#).

Your users can install the desktop analysis plug-ins from the product portal ("pull" installation) or, if your organization is set up for it, you can install the clients for your users in an unattended ("push") installation through a Software Management System (SMS) or similar system.

Before you begin

Upgrading? See [Upgrading from a previous version](#).

Where do I get the software?

Download the [packages](#) from [Klocwork Support](#). Typically, only one or two users in an organization have access to the Klocwork technical support portal. If you don't have access, you can register for a new account.

You need a license. See [Getting a license](#) if you don't already have one.

Running two versions of the Klocwork Servers

If you will be running two sets of the Klocwork Servers, for example to test the Klocwork 2020.4 Servers while users continue to access your existing servers, you must run them on different `projects_root` directories (and [set the ports appropriately](#)).

Required permissions

- Administrator access is required to install all Windows packages, whether using the installation wizard or unattended installation.
- You must have administrator access to install the Klocwork Server.
- You must have administrator permissions to start the Klocwork Servers (and to run the Klocwork Servers as Windows Services).

Installation using the Windows installation wizard

Run the Klocwork Server installation wizard, following the prompts. Note the following:

- During installation, one or more Visual C++ Runtime redistributable packages may be installed on your computer. Depending on your operating system, a reboot may be required at the end of the installation.
- The installation package automatically detects whether you have a 32-bit or 64-bit operating system and installs the appropriate JVM.
- If your system locale is Japanese, the installation package runs in Japanese. Otherwise, it runs in English.
- In the **Setup Type** dialog, you can choose a **complete** or **custom** installation. The **complete** option installs all program features, and is the typical installation. If you choose **custom**, you can choose a **Klocwork Servers Only** option. The **Klocwork Servers and Build Tools** option is the same as the complete installation.

- You'll be asked where you want to create the `projects_root` directory, which is the data location for the Klocwork Servers and applications. It contains Klocwork Server settings and information about integration projects and build analysis runs. It also stores the Klocwork license file. The default location is `<server_install>\projects_root`.

Caution: Do not install the Server package and the `projects_root` directory in the Program Files directory. Default security settings for Windows and Windows Server restrict writing to files in the Program Files directory.

- You can specify server port information during installation in the **Set up Klocwork servers** dialog to override the default settings. See [Viewing and changing Klocwork server settings](#) for more information about ports.
- During installation, you specify whether you want to use the locally installed License Server (**Local**) or connect to a remote License Server (**Remote**). Local, the default option, requires you to browse to your license file. If you select **Remote**, you must specify the host name and port number for your License Server.
- You also have the option of starting the Klocwork Servers as Windows services automatically following installation. If you do not select this option, you need to start the servers manually following installation.
- For information about setting up a secure connection to the Klocwork Server, see [Using a secure Klocwork Server connection](#).

Installing the License Server on a separate host

If you want to install the License Server on a separate host from the Klocwork servers, you need to install it from the command line by using the following command:

```
kw-server-installer.20.4.x.x.windows.exe /w /S /v"/qn /norestart
INSTALLDIR=<local_directory> ADDLOCAL=LicenseServer,JRE"
```

where:

- `<local_directory>` specifies the directory in which you want to install the License Server.

Note on the Path environment variable

On Windows, the Klocwork bin directory is automatically added to your Path environment variable as follows:

Installation package	Environment variable modified	Value used
Server	System Path	<code><server_install>\bin</code>
Desktop Analysis Tools	System Path	<code><desktop_analysis_tool_install>\bin</code>

Log files for Windows installation

An installation log file is saved to the Temp directory of Local Settings whenever one of the Klocwork installation packages is started on Windows. For example, on Windows 10, the installation log file is saved to `%LOCALAPPDATA%\Local\Temp`.

These log files are named `Klocwork<release>-<package>.log`. For example, the installation log file for the Klocwork 2020.4 Server package is named `Klocwork2020.4-Server.log`.

A `logs` directory is also created in the root Klocwork installation directory during installation. For the Server installer, for example, the log files in this directory store `kwservice` output when the servers are first started and the `projects_root` directory is initialized.

Start the servers

To start the servers, use Windows Services Administration or [kwservice start](#):

```
kwservice --projects-root <projects_root> start
```

where <projects_root> is the projects_root directory you specified during installation

Example

```
kwservice --projects-root C:\klocwork\projects_root start
```

Log in to Klocwork Static Code Analysis

After starting the Klocwork servers, Klocwork Static Code Analysis is accessible from a browser using the URL of the Klocwork server hostname and the Klocwork server port chosen during the install (for example, server21:8080). By default, the person who installed Klocwork is set as the Klocwork administrator, and is given the Projects root admin role. Initially, the Basic Authentication access control method is used, so no password is needed to log in. For example, if the user account used during the installation was 'jsmith', to log in to Static Code Analysis with the administrator role, use the credentials:

```
username: jsmith  
password: <empty>
```

For more details on security and authentication methods, see [Security and permissions](#).

Installing the Klocwork Server package on Windows -- Upgrade only

This page provides instructions for installing the Server package if you are upgrading.

IMPORTANT: This is not the starting point for upgrading. Make sure you start with [Upgrading from a previous version](#).

Before you begin

Where do I get the software?

Download the [packages](#) from [Klocwork Support](#). Typically, only one or two users in an organization have access to the Klocwork technical support portal. If you don't have access, you can register for a new account.

Required permissions

- Administrator access is required to install all Windows packages, whether using the installation wizard or unattended installation.
- You must have administrator access to install the Klocwork Server.
- You must have administrator permissions to start the Klocwork Servers (and to run the Klocwork Servers as Windows Services).

Run the installation wizard

Run the Klocwork Server installation wizard, following the prompts. Note the following:

- The installation package includes a pre-packaged JVM and automatically detect whether you have a 32-bit or 64-bit operating system.
- If your system locale is Japanese, the installation package runs in Japanese. Otherwise, it runs in English.
- **Caution:** Do not install the Server package and the projects_root in the Program Files directory. Default security settings for Windows Server restrict writing to files in the Program Files directory.
- For information on the *Use secure server connection (HTTPS)* checkbox, see [Using a secure Klocwork Server connection](#).
- When prompted for the location of the projects_root directory, specify the **old** projects_root directory that you want to migrate.

- You do not need to set host names and port numbers for the Klocwork Servers during installation. This information will be picked up from your old `projects_root` directory when it is migrated.
- Do not select the option to start the Klocwork Servers as Windows services automatically. You will start the servers in a later step.
- The Klocwork bin directory (`<server_install>\bin`) is automatically added to your System Path environment variable.
- The Klocwork Server and Database Server need to be running on the same machine.

Log files

An installation log file is saved to the Temp directory of Local Settings whenever one of the Klocwork installation packages is started on Windows, at, for example, `\Users\<user>\AppData\Local\Temp`.

These log files are named `Klocwork<release_number>-<package>.log`. For example, the installation log file for the Klocwork 2020.4 Server package is named `Klocwork20.4-Server.log`.

A `logs` directory is also created in the root Klocwork installation directory during installation. For the Server installer, for example, the log files in this directory store `kwservice` output when the servers are first started and the `projects_root` directory is initialized.

Installing the Klocwork Server package on Linux

This page provides instructions for installing the Klocwork Server package using the installer.

Before you begin

Upgrading? See [Upgrading from a previous version](#).

Where do I get the software?

Download the [packages](#) from [Klocwork Support](#). Typically, only one or two users in an organization have access to the Klocwork technical support portal. If you don't have access, you can register for a new account.

You need a license. See [Get a license](#) if you don't already have one.

Running two versions of the Klocwork Servers

If you will be running two sets of the Klocwork Servers, for example to test the Klocwork 2020.4 Servers while users continue to access your existing servers, you must run them on different `projects_root` directories.

Check the system requirements

Refer to the [System requirements](#) for a list of required packages and dependencies.

Installation notes

- **Linux only:** There are separate installation packages for 32-bit and 64-bit Java. Make sure you select the one that matches your operating system.
- `ulimit -n` must be 2048 in order to run the Klocwork Server.
- Ensure that the downloaded `.sh` file is executable. Use the `chmod` command to set the appropriate permissions: `chmod 755 <kw-installer.sh>`
- To control permissions when you are installing Klocwork, change the value of `umask`.
- Install Klocwork software as a non-root user.
- Ensure that the path in which you install the product is the same path from which users invoke the product. For example, the local path to the installation might be `/local/tools/klocwork`, but users on other machines have to use the NFS path `/opt/tools/klocwork` to invoke the product. Therefore, to ensure that users can invoke the product, use the `/opt/tools/klocwork` path during installation.
- Due to issues with file locking, user home directories should not be located on NFS. See [Failed to lock file or directory: No locks available](#).
- For some Linux installations, if you want to run the Klocwork Server, you may be required to install additional third-party libraries. For example: `libaiol`, `libaio`, or `libaio.x86_64`.

- For AIX and Solaris, the Klocwork Server must be run from a separate Linux machine. For more information, see .
- If you are installing on 64-bit Linux and the target machine has 6 GB or more of memory, the memory settings configuration will be increased to improve performance.
- The Klocwork Server and Database Server need to be running on the same machine.

Note: Do not locate the `projects_root` directory on NFS to avoid issues with file locking.

Running the installation package

Run the following command:

```
kw-server-installer.20.4.x.x.<platform>.sh [options] <install_directory> [<component ...>]
```

where

- `<platform>` is `linux`.
- `[<options>]` are any of the options listed in Command-line options for the Server package.
- `<install_directory>` specifies the directory in which you want to install Klocwork. Do not specify a subdirectory of the `projects_root` directory. Note that if the chosen directory is not empty, you will not be able to continue with the installation.
- `[<component ...>]` is any of the arguments from [Arguments for Server components](#). Separate multiple components with spaces. If you do not specify one or more components, the entire package will be installed. You can also see a list of arguments for the various components with the `--list` option.

Command-line options for the Server package

Name	Short name	Description
<code>--agree</code>	<code>-a</code>	Agree to license terms and do not display license agreement.
<code>--database-port <port_number></code>		Specify the port number that you will use to run the Database Server. Default: 3306. This option is equivalent to specifying the port number with kwservice .
<code>--debug</code>		Print debug information
<code>--force</code>	<code>-f</code>	Install without integrity checks
<code>--help</code>	<code>-h</code>	Display this help and exit
<code>--klocwork-port <port_number></code>		Specify the port number that you will use to run the Klocwork Server. Default: 8080. This option is equivalent to specifying the port number with kwservice .
<code>--license-port <port_number></code>		Specify that the License Server will be run locally, but on a non-default port. Default: 27000. This option is equivalent to specifying the port number with kwservice .
<code>--license-server <host>[:<port>]</code>		Specify a remote License Server host. The host argument is required; the port argument is optional. Default: localhost:27000. This option is equivalent to specifying the host and port with kwservice . See also Using your organization's FlexNet Publisher server .
<code>--list</code>	<code>-l</code>	List available features (components)

Name	Short name	Description
--projects-root <directory>	-p	Specify the complete path to a non-default projects_root directory. Default: <install_directory>/projects_root. The directory you specify must meet one of the following conditions: <ul style="list-style-type: none"> • it does not yet exist • it is empty • it is a valid projects_root directory created previously. Do not specify the same directory as the root Klocwork installation directory you have specified. Do not install Klocwork in a subdirectory of the projects_root directory. IMPORTANT: If you are upgrading, specify the old projects_root directory that you want to migrate.
--version	-v	display the version of Klocwork software and exit

Arguments for Server components

To install this Server component (feature)...	...enter the argument...
License Server	LicenseServer
Klocwork Server	KlocworkServer

Add Klocwork to your PATH

On Linux, we recommend adding <klocwork_install>/bin to your PATH. Otherwise, you need to execute commands from <klocwork_install>/bin.

Copy the license file

Copy your license file to the following location:

```
<projects_root>/licenses
```

The license file must have the extension .lic.

Note: See [Customizing licensing](#) for licensing options such as using your organization's license server.

Start the servers

Start the servers with `kwservice start`:

```
kwservice --projects-root <projects_root> start
```

where <projects_root> is the projects_root directory you specified during installation

Example

```
kwservice --projects-root /space/klocwork/projects_root start
```

You see messages indicating that the servers have been started, showing the server host name and port number and the path to the projects_root. For example:

```
Using projects root: /space/klocwork/projects_root Local Host is: serverxyz.com [13.1.1.142]
```

```
Starting License Server [started on serverxyz.com:27000] (projects root is /space/klocwork/projects_root)
Starting Database Server [started on serverxyz.com:3306] (projects root is /space/klocwork/projects_root)
Starting Klocwork Server [started on serverxyz.com:8080] (projects root is /space/klocwork/projects_root)
```

Important: If you create a script to start the Klocwork servers automatically, do not name your script 'klocwork' as it will interfere with existing processes.

Log in to Klocwork Static Code Analysis

After starting the Klocwork servers, Klocwork Static Code Analysis is accessible from a browser using the URL of the Klocwork server hostname and the Klocwork server port chosen during the install (for example, server21:8080). By default, the person who installed Klocwork is set as the Klocwork administrator, and is given the Projects root admin role. Initially, the Basic Authentication access control method is used, so no password is needed to log in. For example, if the user account used during the installation was 'jsmith', to log in to Static Code Analysis with the administrator role, use the credentials:

```
username: jsmith
password: <empty>
```

For more details on security and authentication methods, see [Security and permissions](#).

Installing the Klocwork Server package on Linux -- Upgrade only

This page provides instructions for installing the Server package if you are upgrading.

Important: This is not the starting point for upgrading. Make sure you start with [Upgrading from a previous version](#).

Before you begin

Where do I get the software?

Download the [packages](#) from [Klocwork Support](#). Typically, only one or two users in an organization have access to Klocwork Developer Network. If you don't have access, you can register for a new account.

Installation notes

- **Linux only:** There are separate installation packages for 32-bit and 64-bit Java. Make sure you select the one that matches your operating system.
- `ulimit -n` must be 2048 in order to run the Klocwork Server.
- Ensure that the downloaded `.sh` file is executable. Use the `chmod` command to set the appropriate permissions:`chmod 755 <kw-installer.sh>`
- To control permissions when you are installing Klocwork, change the value of `umask`.
- Install Klocwork software as a non-root user.
- Ensure that the path in which you install the product is the same path from which users invoke the product. For example, the local path to the installation might be `/local/tools/klocwork`, but users on other machines have to use the NFS path `/opt/tools/klocwork` to invoke the product. Therefore, to ensure that users can invoke the product, use the `/opt/tools/klocwork` path during installation.
- Due to issues with file locking, user home directories should not be located on NFS. See [Failed to lock file or directory: No locks available](#).
- The Klocwork Server and Database Server need to be running on the same machine.

Note: Do not locate the `projects_root` directory on NFS to avoid issues with file locking.

Run the installation package

Run the following command:

```
kw-server-installer-20.4.x.x.<platform>.sh -p <projects_root> [options]
<install_directory> [component ...]
```

where

- <platform> is `linux`.
- <projects_root> is the location of the **old** `projects_root` directory that you want to migrate
- [<options>] are any of the options listed in [Command-line options for the Server package](#)

Note: You do not need to set host names and port numbers for the Klocwork Servers during installation. This information will be picked up from your old `projects_root` directory when it is migrated.

- <install_directory> specifies the directory in which you want to install Klocwork. Do not specify a subdirectory of the `projects_root` directory. Note that if the chosen directory is not empty, you will not be able to continue with the installation.
- [<component ...>] is any of the arguments from [Arguments for Server components](#). Separate multiple components with spaces. If you do not specify one or more components, the entire package will be installed. You can also see a list of arguments for the various components with the `--list` option. Note that an asterisk in the returned output means the component is already installed.

Example

```
kw-server-installer-20.4.0.0.linux.sh -p /space/old_projects_root /opt/klocwork
```

Command-line options for the Server package

Name	Short name	Description
<code>--agree</code>	<code>-a</code>	Agree to license terms and do not display license agreement.
<code>--database-port <port_number></code>		Specify the port number that you will use to run the Database Server. Default: 3306. This option is equivalent to specifying the port number with kwservice .
<code>--debug</code>		Print debug information
<code>--force</code>	<code>-f</code>	Install without integrity checks
<code>--help</code>	<code>-h</code>	Display this help and exit
<code>--klocwork-port <port_number></code>		Specify the port number that you will use to run the Klocwork Server. Default: 8080. This option is equivalent to specifying the port number with kwservice .
<code>--license-port <port_number></code>		Specify that the License Server will be run locally, but on a non-default port. Default: 27000. This option is equivalent to specifying the port number with kwservice .
<code>--license-server <host>[:<port>]</code>		Specify a remote License Server host. The host argument is required; the port argument is optional. Default: localhost:27000. This option is equivalent to specifying the host and port with kwservice . See also Using your organization's FlexNet Publisher server .
<code>--list</code>	<code>-l</code>	List available features (components)

Name	Short name	Description
--projects-root <directory>	-p	Specify the complete path to a non-default projects_root directory. Default: <install_directory>/projects_root. The directory you specify must meet one of the following conditions: <ul style="list-style-type: none"> • it does not yet exist • it is empty • it is a valid projects_root directory created previously Do not specify the same directory as the root Klocwork installation directory you have specified. Do not install Klocwork in a subdirectory of the projects_root directory. IMPORTANT: If you are upgrading, specify the old projects_root directory that you want to migrate.
--version	-v	display the version of Klocwork software and exit

Arguments for Server components

To install this Server component (feature)...	...enter the argument...
License Server	LicenseServer
Klocwork Server	KlocworkServer

Add Klocwork to your PATH

On Linux, we recommend adding <klocwork_install>/bin to your PATH. Otherwise, you need to execute commands from <klocwork_install>/bin.

Installing the Build Tools package

What is the Build Tools package?

The kwbuildtools package is a zip archive which contains the following components:

- The build integration tools ([kwinject](#), [kwant](#))
- The analysis engine
- Tools required to interact with the remote server ([kwauth](#), [kwadmin](#), [kwdeploy](#), [kwbuildproject](#))

The following platforms are supported for the kwbuildtools package: [Supported platforms](#)

How to install the Build Tools package

Prerequisite: The Build Tools package requires access to a Klocwork Server for configuration information and to publish results; The Server may be local or remote. If you are on Mac, AIX, or Solaris, you must have your Klocwork Server running remotely from a Windows or Linux machine.

1. Unzip the kwbuildtools.<version>.<platform>.zip to your desired location on your local machine.
2. Run [kwdeploy](#) to sync any custom checkers and/or compiler filter files you have deployed on the Klocwork Server. Note that you need to re-run kwdeploy whenever new files are deployed on the server. For example:

```
kwdeploy sync --url http(s)://<host>:<port>
```


Installing the Build Tools package -- Upgrade only

If you are upgrading to a new version of Klocwork, you need to upgrade the version of the Build Tools package you are using as well. Below is our recommended procedure for upgrading this package.

Perform the upgrade

1. Install the latest Klocwork Server package on your Windows or Linux server. For more details on this, see [Installing Klocwork](#) on page 16.
2. Download and unzip the latest version of the Build Tools package to a new directory.

Note: Back up any configuration files you do not have synched to the Klocwork Server, as these are overwritten when you unzip the latest Build Tools package on top of the old one.

Installing the continuous integration (kwciagent) package

What is the continuous integration (kwciagent) package?

[kwciagent](#) is a continuous integration (CI) analysis tool for C/C++, C#, and Java developers similar to [kwcheck](#). Whereas [kwcheck](#) is used on developer's desktops, [kwciagent](#) can be used on CI systems to analyze changed code.

How to install the kwciagent package

Prerequisite: The [kwciagent](#) package requires access to a Klocwork Server for configuration information and optimal analysis results. The Server can be local or remote. If you are on Mac, AIX, or Solaris, you must have your Klocwork Server running remotely from a Windows or Linux machine.

- Unzip the [kwciagent.<version>.<platform>.zip](#) to the desired location on your local machine.

Note: If you also have the [Build Tools package](#) installed, make sure they are in different locations as some files are similar and may be overwritten.

Klocwork Server Configuration for Mac/AIX/Solaris

Changes in Klocwork 2019

As of Klocwork 2019, we no longer provide a Server package for Mac, AIX, or Solaris. You can still analyze your applications on these platforms and load the results to a remote Klocwork Server.

Installing the Build Tools package (all platforms)

Once you have configured the Klocwork Server on your remote Windows or Linux host, you need to unzip the Build Tools package onto each host where you want to analyze locally. For more information about this, see [Installing the Build Tools package](#) on page 24.

After you've installed the Server and the Build Tools package, run [kwdeploy sync](#) to synchronize your build environment. Also, if you have any custom scripts and the server location has changed, ensure these files have been updated to point to the new server location.

Downloading and deploying the desktop analysis plug-ins

The desktop analysis tools refer to the desktop analysis plug-ins and the Klocwork Command Line tools.

As Klocwork Administrator, you can download the desktop analysis tools from <https://library.roguewave.com/display/SUPPORT/Klocwork+-+Product+Downloads> (see **Desktop Tools Packages**), unzip them, and place them within the `clients` directory of the Klocwork Server installation. This

will allow your users to download a desktop analysis tool directly from the portal. Once downloaded, your users can easily install a desktop analysis plug-in on their own.

Depending on your corporate IT policies, you may decide to install the Klocwork desktop analysis tools yourself, as part of a controlled rollout. If this is the case, follow the steps below to download the Klocwork Desktop tools, then see the [installation instructions](#) for details on how to install the plug-ins on your user's desktops.

The Klocwork Desktop Tools packages are organized by platform, where each archive contains the plug-ins supported for the respective platform.

Package	Platform
kw-desktop-tools.20.4.x.xxx.windows.zip	Windows
kw-desktop-tools.20.4.x.xxx.mac.zip	Mac
kw-desktop-tools.20.4.x.xxx.linux.zip	Linux
kw-desktop-tools.20.4.x.xxx.solaris.zip	Solaris

Note: the xxx portion of the path indicates the minor build number.

To deploy the Klocwork Desktop tools:

1. Download the applicable Klocwork Desktop tools package from [Support downloads](#).

You'll need to log in to the site using your Rogue Wave Support Center user ID and password. If you do not currently have a Rogue Wave Support Center user ID and password, you'll need to register as a new user. You need to have active maintenance to access this page.

2. Once downloaded, unzip the Desktop Tools package archive into the `<server_install_path>/clients` directory, where `<server_install_path>` is the location of your Klocwork Server installation on Windows.

On Mac, the folder is located at `/usr/local/kw/server/clients`
or `/Library/Frameworks/KlocworkServer.framework/Versions/2020.4/clients`

Note: This directory contains a single file called `clients.json`. **Do not delete this file.**

3. Refresh the portal and verify that the **Downloads** list appears on the right hand side of the portal. The **Downloads** list contains links to the desktop analysis plug-ins. Your users can download and install the desktop analysis tools directly from here.
4. Communicate the deployment to your users, either by sending them a link to the portal and to the [installation instructions below](#) or by sending an internal email that describes how users can download and install the plug-ins.

To specify the Eclipse update site locally:

1. Download the Eclipse update site zip file from [Support downloads](#).

You'll need to log in to the site using your Rogue Wave Technical Support Network user ID and password. If you do not currently have a Rogue Wave Technical Support Network user ID and password, you'll need to register as a new user. You need to have active maintenance to access this page.

2. Open the `<server_install_path>\clients` directory and unzip the file here into a folder called 'update-site'.
3. The 'clients' directory contains a file called `clients.json`. **Do not delete this file.** Open the file in your preferred text editor.
4. In the section of the file called 'title: "Eclipse update site"', edit the 'file:' field, to change it to the location of the newly created 'update-site' folder. Delete the 'url:' line and save the file. Here is an example of the updated `clients.json` file:

```

{
    title: "Eclipse update site",
    title_ja: "Eclipse 更新サイト ",
    show_link: false,

    platforms: {
        "all platforms": {
            file: "update-site"
        }
    }
}

```

5. Refresh the portal and verify that the **Eclipse update site** section appears on the right hand side under **Downloads**. Your users can now copy this link and install the Klocwork plug-in for Eclipse. For further instructions on this, see [Installing the Klocwork plug-in from the Eclipse update site](#) on page 30.

Downloading and deploying additional resources to your Klocwork Portal

Klocwork provides additional resources, which administrators can download and share with users. These resources include the integration analysis tools (Build Tools), which are required to run analysis and load results to the Portal, the continuous integration analysis tools (CI Agent tools), and taxonomy files.

As Klocwork Administrator, you can download additional resources such as build tools and CI agent tools from <https://library.roguewave.com/display/SUPPORT/Klocwork+-+Product+Downloads> and place them within the `clients` directory of the Klocwork Server installation. This will allow your users to download analysis tools directly from the portal. Once downloaded, your users can easily install these tools on their own.

The additional tools packages are organized by platform, where each archive contains the executables supported for the respective platform. Below are the available **Build Tools packages**:

Package	Platform
kwbuildtools20.4.x.xxx.win32.zip	Windows (32-bit)
kwbuildtools20.4.x.xxx.win64.zip	Windows (64-bit)
kwbuildtools20.4.x.xxx.linux.zip	Linux (32-bit)
kwbuildtools20.4.x.xxx.linux64.zip	Linux (64-bit)
kwbuildtools20.4.x.xxx.aix.zip	AIX
kwbuildtools20.4.x.xxx.solaris.zip	Solaris
kwbuildtools20.4.x.xxx.mac.zip	MacOS

Below are the available **CI Agent Tools packages**:

Package	Platform
kwciagent20.4.x.xxx.win32.zip	Windows (32-bit)
kwciagent20.4.x.xxx.win64.zip	Windows (64-bit)
kwciagent20.4.x.xxx.linux.zip	Linux (32-bit)
kwciagent20.4.x.xxx.linux64.zip	Linux (64-bit)

Note: the xxx portion of the path indicates the minor build number.

To deploy these additional tools packages:

1. Download the applicable tools package from [Support downloads](#).

You'll need to log in to the site using your Rogue Wave Support Center user ID and password. If you do not currently have a Rogue Wave Support Center user ID and password, you'll need to register as a new user. You need to have active maintenance to access this page.

2. Once downloaded, copy the additional tools packages into the `<server_install_path>/clients` directory, where `<server_install_path>` is the location of your Klocwork Server installation on Windows.

On Mac, the folder is located at `/usr/local/kw/server/clients`
or `/Library/Frameworks/KlocworkServer.framework/Versions/2020.4/clients`

Note: This directory contains a file called `clients.json`. **Do not delete this file.**

3. Refresh the portal and verify that the **Downloads** list appears on the right hand side of the portal. The **Downloads** list contains links to the desktop analysis plug-ins. Your users can download and install the Build and CI Agent tools directly from here.
4. Communicate the deployment to your users, by sending them a link to the portal and an internal email that describes how users can download and install the plug-ins.

Packaging and deploying taxonomy files to your Klocwork Portal

Taxonomies are another downloadable artifact you can add to the Klocwork Portal and share with your users. For example, users with Project Admin roles can import taxonomies files into their existing projects. The method of deploying them is slightly different. To share taxonomy files, you need to do the following:

1. Locate the taxonomy files you want to package together; For example, you can package together the taxonomy files found in the `<server_install_path>/taxonomies` folder and/or add your own custom taxonomy files.
2. Zip up the taxonomy files and add them to a `taxonomies.zip` file. Note that if you name this file anything else, it **will not** appear in the Portal as expected.
3. Once zipped up, copy the entire `taxonomies.zip` file into the `<server_install_path>/clients` directory, where `<server_install_path>` is the location of your Klocwork Server installation on Windows.

On Mac, the folder is located at `/usr/local/kw/server/clients`
or `/Library/Frameworks/KlocworkServer.framework/Versions/2020.4/clients`

Note: This directory contains a file called `clients.json`. **Do not delete this file.**

4. Refresh the portal and verify that the **Downloads** list appears on the right hand side of the portal. The **Downloads** list contains a link to download the `taxonomies.zip` file. Your users can download and copy the `taxonomies.zip` directly from here.

Downloads	
Command Line tools	+
Eclipse update site	+
Build tools	+
CI agent tools	+
Taxonomies	-
taxonomies.zip	

5. Communicate the change to your users, by sending them a link to the portal and sending an internal email that describes how users can download and install the taxonomies. Users need to unzip this file into their `<server_install_path>/taxonomies` folder.

Installing a desktop analysis plug-in

After you (as Klocwork Administrator) have installed and started the Klocwork Servers, and have downloaded and deployed the desktop analysis plug-ins to the server installation, your users can access the product portal and download and install a desktop analysis plug-in. If your users prefer to work on the command line or want to do a combination of both, they can install the command line tools.

Note: The **Downloads** section will not appear in the portal until the Klocwork Administrator has deployed the plug-ins. See [Downloading and deploying the desktop analysis plug-ins](#) for more information.

To install a plug-in, open the product on the machine where you've installed Klocwork. For example, go to:

`http://server01:8080/portal/Portal.html`

Install your plug-in

As a desktop analysis user, once you've downloaded the installation package from the server, you must run the installer. On Windows and Mac, an installation wizard is provided to guide you through the installation process.

Before you begin

- You can override the default settings for the Klocwork Servers during installation. The defaults for the License Server are localhost and 27000. The default port for the Klocwork Server is 8080.
- **On Windows:** Avoid installing the package in the Program Files directory on Windows. Windows User Access Control (UAC) restricts writing to the Program Files directory.
- Klocwork Servers configuration screen: Specify the Klocwork Server information provided by your Klocwork administrator. Select *Use secure server connection (HTTPS)* if a [secure Klocwork Server connection](#) has been configured.
- Make sure that you have the appropriate administrator access before installing the desktop plugin.
- **On Unix:**
 - To control permissions when you are installing Klocwork, change the value of `umask`.
 - To change the permissions on an existing installation, use `chmod`.
 - Install Klocwork software as a non-root user.
 - **Linux only:** There are separate installation packages for 32-bit and 64-bit Java. Make sure you select the one that matches your operating system.
 - There is no separate plug-in for Android Studio on Windows or Linux: use the IntelliJ IDEA zip package to integrate with Android Studio.

On Windows and Mac

For Visual Studio and our command line tools, simply download the package and run the installation wizard. The installation wizard will guide you through the rest of the process. For IntelliJ IDEA, Android Studio, and CLion, see [Installing the CLion/IntelliJ IDEA/Android Studio plugins](#). For Visual Studio Code, see [Installing the Visual Studio Code extension](#)

On Mac

- **JVM version:** On Mac OS, Klocwork uses the Java Virtual Machine provided by your system. Klocwork requires Java 7 or Java 8.
- Files are installed in the following location: `/Library/Frameworks/`
- Access command-line tools using the symbolic links in `/usr/local/kw/`.

On Unix

You can install the packages using the following command:

```
kw-<plug-in>-installer.sh [options] <install_directory>
```

Where

- <plug-in> is the name of the plug-in you want to install. For example, 'cmd'.
- [options] are any command line options you may want to specify. In most cases, just specify '-a' here to indicate that you agree to the terms of the Klocwork license. Use --h to get help on what available command line options exist.
- <install_directory> specifies the directory where the Klocwork plug-in will be installed

Add the bin directory to your PATH

We recommend adding the <command_line_tools_install>/bin directory to your PATH environment variable. Procedures in the documentation assume that you have added the bin directory to your PATH.

Command-line options for the desktop analysis plugin package on Unix

Name	Short name	Description
--agree	-a	agree to license terms and do not display license agreement
--force	-f	install without integrity checks
--help	-h	display this help and exit
--klocwork-server <host>[:<port>]		specify the Klocwork Server host name and port number. Default: localhost:8080.
--license-server <host>[:<port>]		specify the License Server host name and port number. Default: localhost:27000
--version	-v	display the version of Klocwork software and exit
--debug		print the debug information

Example: Installing the Command Line Tools package on Linux

```
kw-cmd-installer.linux64.sh -a /home/jlee/klocwork
```

where

- -a means that you agree to the terms of the Klocwork license
- /home/jlee/klocwork specifies where Klocwork will be installed

Installing the Klocwork plug-in from the Eclipse update site

Prerequisite: Your Eclipse IDE must be running under JVM 1.7 or higher before installing the Klocwork plugin.

To install the Klocwork Desktop Analysis plug-in for Eclipse, follow the steps below.

1. In the Klocwork product portal, under **Downloads**, click **Eclipse update site**.
2. Copy the URL.
3. Open Eclipse.
4. Follow the instructions according to the version of Eclipse you're using:
 - For Eclipse 3.4, go to **Help > Software Updates**.
 - For Eclipse 3.5 or newer, go to **Help > Install New Software**.
 - For Wind River Workbench prior to version 4.0, select the **Advanced Device Development** perspective (the button near the upper right) to access **Help > Software Updates**.
5. In the **Install** dialog, paste the URL into the **Work with:** field and press **Enter**.
6. Select the **Klocwork Tools** check box.

7. If you use Wind River Workbench, click the arrow next to the **Wind River Workbench Integrations** check box and then select the appropriate Klocwork Wind River Workbench Integration:
 - Select the **Klocwork Wind River Workbench 3 Integration** check box for Wind River version 3.
 - Select the **Klocwork Wind River Workbench 4 Integration** check box for Wind River version 4.
8. Click **Next** and the wizard will guide you through the rest of the installation process.
9. When you are prompted to restart Eclipse, click **Yes**.
10. Specify the information for your License Server. Go to the Settings dialog (**Window > Preferences > Klocwork > Settings**). Enter your License Server and Port information, then click **Apply and Close**.

Installing the IntelliJ IDEA/Android Studio/CLion plugins


Important: If you have a Klocwork 2020.1 or earlier version of these plugins installed, we recommend that you uninstall them before installing the latest version.

To install the Klocwork Desktop Analysis plugin(s) for IntelliJ IDEA, Android Studio, and/or CLion:

1. Download the applicable Klocwork Desktop tools package (kw-desktop-tools.<version>.<platform>.zip) from [Support downloads](#).

You'll need to log in to the site using your Rogue Wave Support Center user ID and password. If you do not currently have a Rogue Wave Support Center user ID and password, you'll need to register as a new user. You need to have active maintenance to access this page.

Note: You can download the zip package directly from the **Downloads** section in the Klocwork Portal if your administrator has deployed the desktop analysis plug-ins. See [Downloading and deploying the desktop analysis plug-ins](#) for more information.

2. Once downloaded, unzip the package into your preferred location.
3. In IntelliJ IDEA/Android Studio/CLion, click **File > Settings** and select **Plugins**.
4. Click the  icon and select **Install Plugin from Disk...**
5. Navigate to the downloaded zip package and select **OK**. The zip packages for each plugin are as follows:

Package	Applicable IDE
kw-idea-plugin.zip	IntelliJ IDEA, Android Studio
kw-clion-plugin.zip	CLion

6. The plugin (for example, '**Klocwork Static Analysis for CLion**') now appears in your plugins list. Select **Restart IDE** to complete the installation.

Configuring your system settings (CLion only)

Prerequisite: The Klocwork **Command Line tools** (kw-cmd-installer*) must be installed.

You can configure your system settings as follows:

1. In CLion, click **File > Settings**.
2. Under **Tools**, select **Klocwork System Settings**.
3. Under **Klocwork User Installation**, navigate to the location of your Build Tools and click **Apply**.
4. After the Build Tools location is specified, the fields under **Klocwork Server URL** and **Klocwork License Server** are populated automatically if they are blank. If these fields were previously defined, you need to update them manually to the expected value(s).

Note: If you are using SSL authentication, ensure the Server URL is using 'https'.

5. **Continuous Analysis** is enabled by default; remove this option if you prefer to run analysis on demand.

Installing the Visual Studio Code extension

To install the Klocwork extension for Visual Studio Code:

1. Download the applicable Klocwork Desktop tools package (kw-desktop-tools.<version>.<platform>.zip) from [Support downloads](#).

Log in to the site using your Rogue Wave Support Center user ID and password. If you do not currently have a Rogue Wave Support Center user ID and password, register as a new user. Active maintenance is required to access this page.

Note: You can download the zip package directly from the **Downloads** section in the Klocwork Portal if your administrator has deployed the desktop analysis plug-ins. See [Downloading and deploying the desktop analysis plug-ins](#) for more information.

2. Once downloaded, unzip the package into your preferred location.
3. In Visual Studio Code, click **Extensions > ...** and select **Install from VSIX**.
4. Navigate to the downloaded .vsix file (For example, 'kwvscodextension-20.4.55.vsix') and select **OK**.
5. Refresh and the extension now appears in your **Extensions** panel.

Configuring your settings

You can configure your settings as follows:

1. In VS Code, open the **Extensions** panel.
2. Right-click the Klocwork extension, select **Settings**. You can configure the following:
 - **Continuous Analysis Enabled** allows continuous analysis to run against your project; remove this option if you prefer to run analysis on demand.
 - **Display Klocwork Analysis Results When Workspace Loaded** determines which Klocwork diagnostics are displayed when opening a workspace with previously generated analysis results.
 - **Help: Source** allows you to specify where to access Klocwork checker help from (Online or Server). Default is set to online.
 - **Klocwork Tools Location** allows you to specify the location of the Klocwork command line tools; This is required to run analysis (For example, 'C:\Klocwork\Command Line 20.4\bin'). Note that the extension is also able to pick up this setting from the PATH environment variable. For instructions on how to install these tools, see [Installing the Build Tools package](#) on page 24.
 - **Logging: Level** determines the level of details provided in the Klocwork output log.

Troubleshooting

- [Package Load Failure occurs in Visual Studio after I install patch](#)
- [Error reading setup initialization file during installation](#)

Running a custom installation for new or upgraded IDEs

If after you installed Klocwork, you upgraded your IDE, you must uninstall the previous version of the plug-in. For uninstallation information, see [Uninstalling Klocwork](#).

After uninstalling, either:

- re-run the Klocwork desktop analysis plug-in installer, or
- install from the IntelliJ IDEA/Android Studio/CLion zip package, or
- install from the Eclipse plugin from the update site in your new version of Eclipse

If you're using Visual Studio or Eclipse, a few additional upgrade steps are provided below:

Visual Studio

For the Klocwork extension for Visual Studio, verify that you've uninstalled the previous version of the extension and its Help. Then, re-run the **Microsoft Visual Studio Extension** installer from the Portal.

Installing the Eclipse update site after upgrading Eclipse

Regardless of the Eclipse version you upgraded to, simply install the Eclipse plugin from the update site. See [Install the Klocwork plug-in from the Eclipse update site](#).

Installing the Distributed Analysis package

The Distributed Analysis components are available as a separate Klocwork installation package (for example, on Linux, the package is `kw-dist-build-installer.20.4.x.x.linux.sh`).

Where do I get the software?

Download the [package](#) from [Klocwork Support](#). Typically, only one or two users in an organization have access to the Klocwork technical support portal. If you don't have access, you can register for a new account.

Installing on Unix

To install the complete Klocwork Distributed Analysis package on Unix:

1. Download the Klocwork Distributed Analysis installation package for your operating system to a temporary directory.
2. Ensure that the downloaded `.sh` file is executable. Use the `chmod` command to set the appropriate permissions. Enter:

```
chmod 755 <executable-name>
```

Note: Install Klocwork software as a non-root user.

3. Run the executable with the options and arguments you want.

```
<kw-dist-analysis-installer> -a -i <install_directory>
```

where:

`<kw-dist-analysis-installer>` is the name of the installation executable

`-a` indicates that you accept the license agreement

`<install_directory>` is the absolute path to the location in which you want to install the Distributed Analysis package

Installing on Windows

On Windows, you can use the installation wizard or perform an unattended installation.

To install the Klocwork Distributed Analysis package on Windows, you must have administrator permissions for the machine you want to install on.

Installing Klocwork with the installation wizard

To install the Klocwork Distributed Analysis package or its components on a local machine:

1. Download the Klocwork Distributed Analysis package for Windows to a temporary directory.
2. Run the installation executable.

The graphical user interface initializes and prepares.

The Welcome screen of the wizard appears.

3. Click **Next**.

The License Agreement screen appears.

4. Review the license agreement, and, if you agree, click "I accept the terms of the license agreement".
5. Click **Next**.

The "Destination Directory" screen appears. The default destination directory is the local drive with the most available space. For example: D:\Klocwork\Distributed Analysis 20.4\

6. Click **Next** to accept the default folder or click **Change...** to install Klocwork in a different location.

If you click **Change...**, the Change Current Destination Folder screen appears. Browse to the folder where you want to install Klocwork.

Important: Avoid installing the package in the Program Files directory on Windows machines. Windows User Access Control (UAC) restricts writing to the Program Files directory.

7. Click **OK**.
8. Click **Next**.

The Setup Type screen appears. By default, the Complete button is selected.

9. To install the entire Klocwork Distributed Analysis package on one machine, leave the *Complete* button selected and go to step 11.
10. To select one component to install on this machine, click *Custom* and click **Next**.

The Custom Setup screen appears, showing two choices.

Note: In the Windows installation wizard, the term "feature" means "component".

If there is a component you do not want to install on this machine, click the icon of the component and click **This feature will not be available**. Any components you do *not* disable will be installed. Click off **Klocwork Distributed Analysis Server** or **Klocwork Distributed Analysis Agent**, depending on which component you do *not* wish to install.

Important: Ensure that you choose a location with enough disk space. See [System requirements](#). To see how much disk space is available on the machine, click **Space**.

11. Click **Next**.

The Ready to Install the Program screen appears.

12. To review or change any of your installation settings, click **Back**. To continue the installation with the settings you have, click **Install**.

A progress bar appears while Klocwork installs. The Setup Wizard Completed screen appears.

13. Click **Finish**.

Running an unattended installation on Windows

To run an unattended Windows installation of the Distributed Analysis package, enter the following command:

```
<kw-dist-build-installer> /S/v"/qn [ADDLOCAL=<component_code>]  
INSTALLDIR=<install_directory> /lv* <log_file>"
```

where:

- <kw-dist-build-installer> is the name of the Windows Distributed Analysis installation executable
- ADDLOCAL=<component_code> is optional and allows you to install only the Server or the Agent component of the package
- <component_code> is either `DistributedAnalysisServer` or `DistributedAnalysisAgent`
- <install_directory> is the absolute path to the directory in which you want to install
- /lv* <log_file> allows you to log installation errors to file (recommended). The directory you specify must already exist. Use the absolute path to the log file.

Note: Surround any value that contains spaces with escaped quotation marks (\").

Example:

```
kw-dist-build-installer.20.4.0.353.windows.exe /S /v"/qn  
INSTALLDIR="C:\Klocwork\20.4\Distributed Analysis\  
/lvx* C:\Klocwork\dist_analysis.log"
```

Log files for Windows installation

An installation log file is saved to %USERPROFILE%\AppData\Local\Temp whenever one of the Klocwork installation packages is started on Windows.

These log files are named `Klocwork<release-number>-<package>.log`. For example, the installation log file for the Klocwork 2020.4 Distributed Analysis package is named `Klocwork20.4-Dist.log`.

A logs directory is also created in the root Klocwork installation directory during installation on Windows. For the Server installer, for example, the log files in this directory store [kwservice](#) output when the servers are first started and the `projects_root` directory is initialized.

If you need to troubleshoot your installation, check these logs.

Unattended installation on Windows

To run an unattended installation of Klocwork, enter the following command:

```
start /WAIT <installer.exe> /w /S [/L<langid>] /v"/qn INSTALLDIR=<install_directory> /log <install_log> PROPERTY=VALUE PROPERTY1=VALUE1..."
```

where:

- <installer.exe> is the name of the installation package you want to use, for example, `kw-server-installer.20.4.0.353.windows.exe`
- /w parameter will cause the parent process to wait for the installation process. See the [InstallShield help library](#) for more information on this.
 - | **Note:** The %errorlevel% system variable can be used to check for installation success.
- /L<langid> allows you to change the default language for the installation package. By default, if your system locale is Japanese, the installation package will run in Japanese. Otherwise, it will run in English. To specify Japanese, use /L1041.
- /v passes subsequent parameters directly to the MSI engine. The entire string after /v must be surrounded by quotation marks.
- /qn runs the installer in unattended mode
- <install_directory> is the absolute path to the directory in which you want to install Klocwork. The default is the root directory of the local drive with the most available space. `%LOCAL_DRIVE%\Klocwork\<package>`, where <package> can be Server or one of the desktop packages. Note that if the chosen directory is not empty, you will not be able to continue with the installation.
- PROPERTY=VALUE is any of the [Allowable PROPERTY=VALUE pairs for unattended installation](#)
 - | **Note:** Surround any value that contains spaces with escaped quotation marks (\").

Example

```
start /WAIT kw-server-installer.20.4.0.353.windows.exe /w /S /v"/qn  
INSTALLDIR=\"C:\Klocwork\Server 2020.4\" /log C:\server.log"
```

Installing a desktop analysis tool

You can install the desktop analysis tools using unattended installation, however you must first download the desktop tools package from <https://library.roguewave.com/display/SUPPORT/Klocwork+-+Product+Downloads> (see **Desktop Tools Packages**) and unzip them into a folder on your local machine. The desktop tools package contains installation binaries for each of the desktop tools, organized by platform. For more information see, [Downloading and deploying the desktop analysis plug-ins](#).

Once unzipped and placed into a directory on your local computer, run the unattended installation from the command-line, specifying the file name of the installer for the desktop tool that you want to install. In the following example, the IntelliJ IDEA plug-in is installed into a custom directory.

Example

```
start /WAIT kw-idea-installer.windows.exe /w /S /v"/qn  
INSTALLDIR=\"C:\kw\idea_plugin\" /log C:\idea_install.log"
```

Installing specific components in unattended mode

To install one or more specific Klocwork components (for example, to install the database server) in an unattended installation, include `ADDLOCAL=<component_arguments>` in your command line, where `<component_arguments>` is one or more arguments from the following tables. Multiple arguments must be separated by commas, for example, `ADDLOCAL=BuildTools,JRE`.

Note: When running an unattended installation, you must always install the JRE component in order for the other components to work.

To install this component (feature)	Enter the argument
Java Runtime Environment	JRE
License Server (Server installer package)	LicenseServer
Klocwork Server (Server installer package)	KlocworkServer
Distributed analysis server (Distributed build package)	DistributedAnalysisServer
Distributed analysis agent (Distributed build package)	DistributedAnalysisAgent

Allowable PROPERTY=VALUE pairs for unattended installation

Server package

PROPERTY=VALUE	Description
<code>ADDLOCAL=<component_list></code>	Installs specific components only. See tables in previous section for allowable values for this property.
<code>INSTALLDIR=<install_directory></code>	Install into the directory you specify. Default: current working directory. Note that if the chosen directory is not empty, you will not be able to continue with the installation.
<code>PROJECTS_ROOT=<projects_root_directory></code>	Set up a <code>projects_root</code> directory in the directory you specify. The default is <code><Server_install>/projects_root</code> . Specify the complete path. Important: If you are upgrading, specify the old <code>projects_root</code> directory that you want to migrate.
<code>LICENSE_HOST=<host_name></code>	Specify License Server host name. Default: localhost
<code>LICENSE_PORT=<port_number></code>	Specify License Server port number. Default: 27000
<code>MYSQL_HOST=<host_name></code>	Specify Database Server host name. Default: localhost
<code>MYSQL_PORT=<port_number></code>	Specify Database Server port number. Default: 3306
<code>KWSERVER_HOST=<host_name></code>	Specify Klocwork Server host name. Default: localhost
<code>KWSERVER_PORT=<port_number></code>	Specify Klocwork Server port number. Default: 8080

Note: The Server Installer also supports the `ALLUSERS` property. For details, see [this MSDN article](#).

Desktop plugins

Name	Description
ADDLOCAL=<component_arguments>	Installs specific components only. See tables in previous section for allowable values for this property.
CREATE_SHORTCUTS=\\\""	Suppress creation of desktop shortcuts. Default: 1 (create shortcuts)
IDEAINSTALLDIR= <directory>	The directory where IntelliJ IDEA is installed
INSTALLDIR=<directory>	Install into the directory you specify. Default: current working directory. Note that if the chosen directory is not empty, you will not be able to continue with the installation.
LICENSE_HOST=<host_name>	Use License Server running at <host_name>
LICENSE_PORT=<port_number>	Use License Server running at <port_number>
KWSERVER_HOST=<host_name>	Use Klocwork Server running at <host_name>
KWSERVER_PORT=<port_number>	Use Klocwork Server running at <port_number>

After you install

The following topics describe post-installation activities including testing your installation, running an unattended installation, installing the distributed analysis package, and troubleshooting.

Testing your installation

To test your Klocwork installation, you can either use the sample project 'demosthenes', or create and analyze your own sample project.

Log in to Klocwork Static Code Analysis

After starting the Klocwork servers, Klocwork Static Code Analysis is accessible from a browser using the URL of the Klocwork server hostname and the Klocwork server port chosen during the install (for example, server21:8080). By default, the person who installed Klocwork is set as the Klocwork administrator, and is given the Projects root admin role. Initially, the Basic Authentication access control method is used, so no password is needed to log in. For example, if the user account used during the installation was 'jsmith', to log in to Static Code Analysis with the administrator role, use the credentials:

```
username: jsmith
password: <empty>
```

For more details on security and authentication methods, see [Security and permissions](#).

Using demosthenes

In `<Klocwork_install>\samples`, you can find the Demosthenes sample project (a sample C/C++ project).

This directory contains a sample project and a readme file that shows you how to set up some sample analyses you can use to explore or demonstrate Klocwork.

Note: To successfully build a sample project on Unix you should have GNU make, GCC, and bash.

Create and analyze a sample project

To test your Server package installation, you can create and analyze a sample project and then view the results of your analysis in Klocwork Static Code Analysis:

- [C/C++ integration build analysis - Cheat sheet](#)
- [Java integration build analysis - Cheat sheet](#)
- [C-sharp integration build analysis - Cheat sheet](#)

Troubleshooting your installation

Need a hand with your installation? Did you have trouble installing the product? This section describes basic installation issues and provides troubleshooting information.

Repairing a Windows installation of Klocwork

If files in the Klocwork installation were accidentally damaged or deleted, you can repair the installation.

You may discover that your Klocwork installation is damaged, for example, if you are attempting to uninstall Klocwork and see the error message "Fatal error: Cannot uninstall".

If this occurs, click **OK** in the error message dialog to cancel the uninstallation, perform the following repair procedure, and then run the uninstallation procedure again.

To repair a Klocwork installation on Windows:

1. In the Start menu, click **Control Panel > Add or Remove Programs** .

The Add or Remove Programs dialog appears.

2. Select the Klocwork package you want to repair, and select **Click here for support information**.

The Support Info dialog for the selected Klocwork package appears.

3. Click **Repair**.

The installation is restored to a clean state.

Unable to start the Database Server because the path to the socket file is too long

If the path to the socket file (including separators and the name of the socket file) is greater than 107 characters, you will be unable to start the Klocwork Database Server. The database log will indicate that this is the problem.

The socket file is located in the following directory:

```
<projects_root>/locks
```

To remedy this situation, move your projects to another projects_root with a path length of less than 68-72 characters, depending on the length of the Database Server port number (which can be 1 to 5 characters).

For help moving a projects_root, see [Moving or creating additional projects_root directories](#).

Unable to start Klocwork Servers following Windows installation

If you see one of the following messages after installing the Klocwork Server package on Windows:

- Error 1920. Service Klocwork 20.4 Server (Klocwork 20.4 Server) failed to start. Verify that you have sufficient privileges to start system services.
- Service Klocwork 20.4 License Server failed to start. See installation log for more details.

An earlier version of the Klocwork Server and/or Klocwork License Server may be running on the port that you specified during installation of Klocwork 2020.4. It is not possible to run two versions of a server on the same port.

You need to set a different port number for the Klocwork Server and/or Klocwork License Server with [kwservice set-service-property](#), and then [start the servers](#).

Database connection error

Note: Do not locate the projects_root directory on NFS to avoid issues with file locking.

If you see the following error:

Error occurred while connecting to database: Database connection to <database> refused: Communications link failure due to underlying exception

Check the host name in the error message. If the host name is not a fully qualified host name that includes the domain (for example, server1.klocwork.com), you need to set the fully qualified domain name for the Database Server.

To do this:

1. Stop the Database Server:

```
kwservice --projects-root <projects_root> stop database
```

2. Run the following command:

```
kwservice --projects-root <projects_root> set-service-property database host <fully-qualified-host-name>
```

3. Start the Database Server:

```
kwservice --projects-root <projects_root> start database
```

Package Load Failure occurs in Visual Studio after I install patch

Do one of the following:

- Uninstall the patch and install the last full version of the Visual Studio plug-in installer.
- From the <VS_user_install>\inforceVSNET directory, run the following command:

```
regsvr32 IfPkgVS2005.dll
```

What to communicate to the team

Your team of developers, managers, build engineers(s), and administrator(s) need to know the following:

- the URL of the Klocwork Server, so that managers and developers can access Klocwork Static Code Analysis and Klocwork Code Review, and install their own desktop analysis plug-ins
- that the URL of the Klocwork Server with "/documentation" added to it will give them all of the Klocwork online documentation
- the location of the [projects_root directory](#) (Klocwork administrators only)
- the host and port of the License Server
- who has permission to start and stop the Klocwork Servers, under what user ID, and, for Windows, whether the servers must be managed as Windows Services

If anyone else needs to access the database, for example, to do backups, and you have locked the database with a password, give the person the password. See [Setting a password for the Klocwork database](#) for more information.

Uninstalling Klocwork

To avoid duplicate entries in the Windows Control Panel and incorrect plug-in version numbers in your IDEs, uninstall the current version of Klocwork before downgrading to a previous version.

Before you uninstall

If you will be modifying or uninstalling a Server package or connected desktop installation, you must stop the Klocwork Servers first. See [Stopping the Klocwork Servers](#).

If you are uninstalling the Server package, in addition to stopping the servers, you should also make a backup copy of your `projects_root` directory and any configuration files you modified, such as `kwfilter.conf`). For Linux and Windows, compiler configuration files are located in `<server_install>/config`. For more information about backing up data, see [Backing up Klocwork data](#).

While the Windows version of the Klocwork Server package won't uninstall the `projects_root` directory or configuration files, it's a good idea to make a backup of these directories. For Linux systems, there is no automated uninstall, so make sure you back up your `projects_root` and any other data files you want to keep and store them outside your Server installation directory. Then you can delete the Server installation directory.

See also [Repairing a Windows installation of Klocwork](#).

Viewing installed components or modifying your installation on Windows

Use the procedure below if you want to remove one or more Klocwork components, or if you need to check what components are currently installed. For example, if you need to uninstall Klocwork before installing a new version, you should check what components are currently installed before uninstalling, so that you can install the same components for the new version.

To view installed components or partially uninstall Klocwork:

1. In the Start menu, go to **Control Panel > Add or Remove Programs**.

Windows: From the Control Panel window, under *Programs*, select **Uninstall a program**.

2. Scroll to and click the Server or desktop plug-in you want information on.
3. To find information about patches, make sure the *Show updates* checkbox is selected at the top of the Add or Remove Programs panel.

The installed patches will be displayed under the Klocwork installation package entry.

4. Click **Change**.


The Welcome screen for the Modification wizard appears.

5. Click **Next**.

The Program Maintenance panel appears.

6. Select *Modify* and click **Next**.

7. The Custom Setup screen appears. Click through it to see what components (features) are installed.

Note: This symbol indicates a component that is installed: 

8. If you are simply viewing installed components:

9. Record which components are installed.

10. Click **Cancel**.

11. Click **Yes** when asked if you are sure.

12. Click **Finish**.

13. If you want to uninstall certain components, or install components you did not previously install:

14. For the components you want to uninstall, click *This feature will not be available*.

For the components you want to install, click *This feature, and all subfeatures, will be installed on local hard drive*.

15. Click Next.

The Ready to Modify the Program screen appears.

16. Click Install.

The features you selected will be modified.

17. Click Finish.

Uninstalling Klocwork from a Windows machine

To remove a Klocwork software package:

1. From the **Start** menu, click **All Programs > Klocwork 2020.4**.
2. Select the uninstaller for the component that you want to uninstall.

Uninstalling in unattended mode on Windows

To run uninstallation in unattended mode from a Windows machine, enter the following command:

```
<installer.exe> /S /v"/qn REMOVE=ALL"
```

where `<installer.exe>` is the package you want to uninstall

An uninstallation log file will be saved to `%USERPROFILE%\Local Settings\Temp`. The log file is named `Klocwork<release>-<package>.log`. For example, the uninstallation log file for the Klocwork 2020.4 Server package is named `Klocwork20.4-Server.log`.

Uninstalling on Linux

Viewing installed components on a Linux machine

If you are upgrading to a new version of Klocwork, check what components are currently installed before uninstalling, so that you can install the same components from the new version.

To list installed components (features), run the following command:

```
kwupdate [option ...] --list
```

See [kwupdate](#) for the full list of options.

To uninstall on Linux, simply delete the Server package and/or desktop plug-in package installation directory.

Uninstalling on Mac

To uninstall, delete the following directories:

```
/Applications/Klocwork User 2020.4  
/Library/Frameworks/Klocwork*.framework  
/usr/local/kw
```

Uninstalling plug-ins

Eclipse

To uninstall the Klocwork plug-in from Eclipse:

Eclipse 3.4	Eclipse 3.5 and up
<ol style="list-style-type: none"> 1. From the Help menu, choose Help > Software Updates > Manage Configuration. 2. The Product Configuration dialog appears. 3. Expand the items in the navigation pane until you see the Klocwork feature. 4. Right-click the Klocwork feature and choose Uninstall, and click Yes to confirm that you want to disable this feature. 	<ol style="list-style-type: none"> 1. From the Help menu, choose Help > About Eclipse 2. Click Installation Details. 3. Select the Klocwork plug-in from the list and click Uninstall.

When you're prompted to restart Eclipse, click **Yes**.

Once Eclipse restarts, the Klocwork buttons and menu items are no longer present. If you haven't uninstalled the Klocwork desktop analysis plug-in for Eclipse, your Klocwork projects remain in their storage location.

IntelliJ IDEA/Android Studio/CLion

1. Go to **File > Settings**.
2. Click **Plugins**.
3. Click on the relevant Klocwork plugin (For example, **Klocwork Static Analysis for CLion**), click the down arrow and select **Uninstall**.
4. Confirm you want to uninstall by selecting **Yes**.
5. Click **Restart IDE** and select **Restart**.
6. Your IDE will restart and the Klocwork plugin is now removed.

Note: You must restart IntelliJ IDEA/Android Studio/CLion after uninstallation, before you install a new version of Klocwork.

Klocwork extension for Visual Studio

1. In Visual Studio, click **Help > Add and Remove Help Content**.
2. For the **Klocwork Desktop Plugin**, click **Remove**.
3. Click **Update** and then close the Help Viewer.
4. In Visual Studio, go to **Tools > Extensions and Updates**.
5. In the list of Installed items, find **Klocwork Static Analysis** and click **Uninstall**.
6. Restart Visual Studio in order for the changes to take effect.



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