IBM ®

Rational Software Architect Real-Time Edition

RSARTE 10.0 Installation Instructions

1   Introduction

This document guides you through the installation of Rational Software Architect Real-Time Edition (*RSARTE*). It covers three different installation scenarios:

- An interactively performed local installation in <u>section 2</u>

- A command line based installation suitable for scripting in <u>section 3</u>

- An installation based on the Eclipse Installer in <u>section 4</u>

To follow the instructions in this document and successfully install RSARTE 10 you will need the following:

- An installation of **Eclipse IDE for C/C++ Developers** for Eclipse Mars SR2. This can be downloaded from <u>http://www.eclipse.org/downloads</u>

  - Note! If you plan to use EGit (the Git integration available in Eclipse) you should not install it before installing RSARTE. Instead you will be offered to install it at the same time when installing RSARTE. The version of EGit that is used with RSARTE currently is 4.4.

- Access to a repository containing the RSARTE update site. This can either be a locally downloaded zip file (available from <u>IBM Fix Central</u>) or the address of a shared repository that has been preconfigured for your usage.

- A valid license. This can either be provided by means of a license server that contains RSARTE licenses, or it can be a license key (permanent or trial) which you have obtained from IBM.

- An installation of a Java 8 run-time environment (JRE). RSARTE 10 does not work with Java 7 or older JREs. We recommend to use the JRE provided by Oracle.

2 Installing from Eclipse workbench

Here we describe how to install RSARTE as an update site on top of Eclipse Mars SR2 (4.5.2) using the Eclipse graphical user interface. The sections that follow will cover how to install it from the command line or using the Eclipse installer.

The screen shots below were generated from Eclipse Mars SR2 and RSARTE 10.0 2016.38 on the Windows platform, and might differ slightly depending on the exact version that is used.
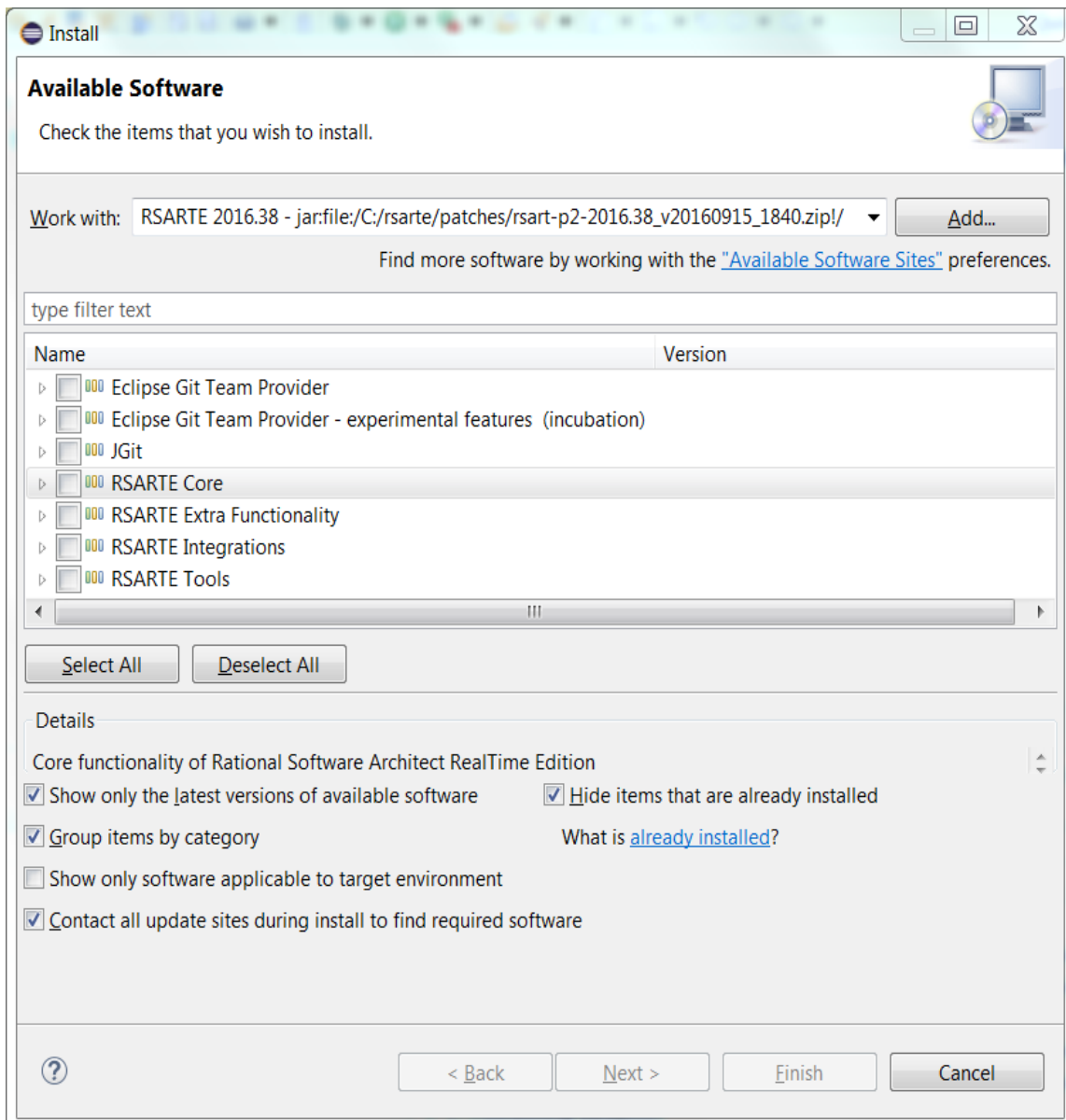
2.1 Install

NOTE: You must have sufficient administration rights so that the OS will allow you to write the files to the installation directory of Eclipse.

NOTE: RSARTE can be installed on top of many Eclipse distributions, but we recommend to use "Eclipse IDE for C/C++ Developers".

1. Start Eclipse.
2. Choose the **Install New Software...** command from the **Help** menu.
3. Press the **Add...** button and enter the location of the RSARTE update site. If the update site is located on a server you can directly type its URL in the **Location** field. If instead you have it as a ZIP file in the file system, press the **Archive...** button and select it. If the ZIP file already was unpacked to a folder, you should instead use the **Local...** button and select the folder. You can give a meaningful name to the repository in case you want to install from it again in the future. For example:
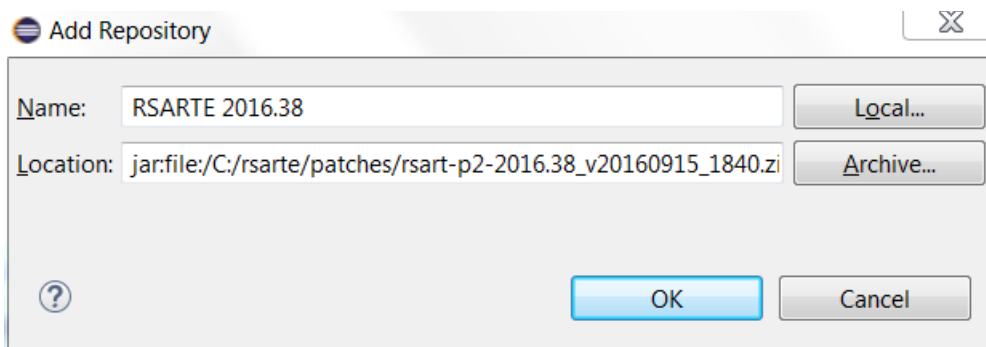
4. Select the added repository in the **Work with** drop down list. A list of RSARTE installation categories will be shown in the list below. It will look something like this (which categories that are available depends on the exact version of RSARTE):

Under each installation category you can see the features it contains. You can select individual features to install, but commonly you will select only the top-level categories.

The core RSARTE functionality is contained in the **RSARTE Core** category. All other categories contain optional additional functionality which you may or may not choose to install depending on your needs.

5. Select **RSARTE Core** and any of the other optional categories you want to install. Press **Next**.

    - **NOTE**: If you get errors at this step double check that you run with sufficient priviliges to be able to make updates to the system and files. (On Windows 7 you may need to start Eclipse using the "Run As Administrator" command and on Linux with root rights).

    - **NOTE:** If you choose to install the **RSARTE EGit Integration** (available under the **RSARTE Integrations** category) you must also install the **Eclipse Git Team Provider**. Only this specific version of Egit can be used with RSARTE.

- **NOTE:** Depending on what Eclipse distribution you use, some Eclipse plugins which RSARTE requires may be missing. Such plugins must be downloaded during the installation. To allow this to happen automatically you must select the checkbox **Contact all update sites during install to find required software** and add http://download.eclipse.org/releases/mars to the list of available software sites (*Preferences – Install/Update – Available Software Sites*).

6. If you already had an older version of RSARTE 10 installed, you will now get an **Install Details** page with a message that "Your original request has been modified". This is just information that Eclipse detected an old version of RSARTE which it will update. See chapter 2.3 for more information. Just press **Next** to proceed.

7. A final **Review Licenses** page will now be shown. If you accept the license agreements, click the appropriate button and then **Finish**.

8. The installation will now start. This can take several minutes so please be patient.
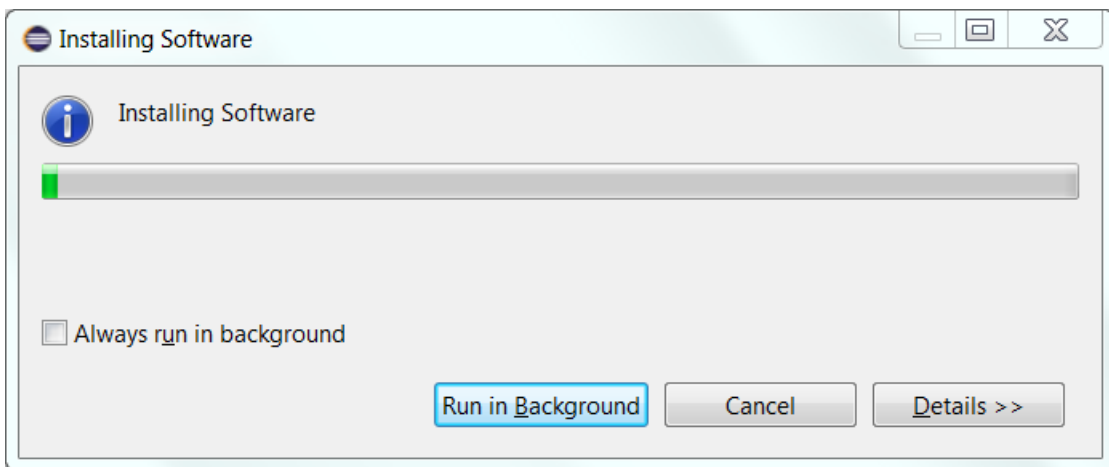
9. After the installation is complete, you will be asked to restart Eclipse. Answer **Yes**. You are not encouraged to try to use RSARTE without restarting Eclipse.

10. When Eclipse has started again you can confirm that RSARTE was successfully installed. Open the **About** dialog and locate the RSARTE icon:
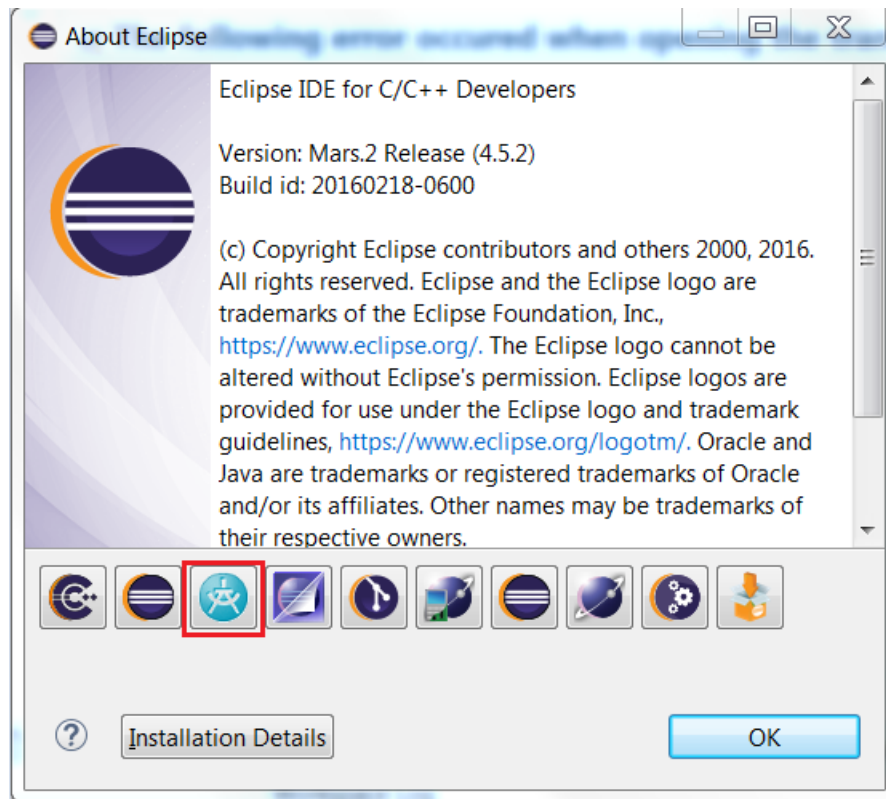
Click the button to view the installed version of RSARTE and release:

IBM Rational® Software Architect RealTime Edition

Version: 10.0.0.v20160916_1135
Release: 2016.38

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Visit http://www.ibm.com/developerworks/connect/rsarte

You can also find the installed RSARTE features if you press the **Installation Details** button in the About dialog, and then click the **Installed Software** tab. (The feature names selected below belong to RSARTE).
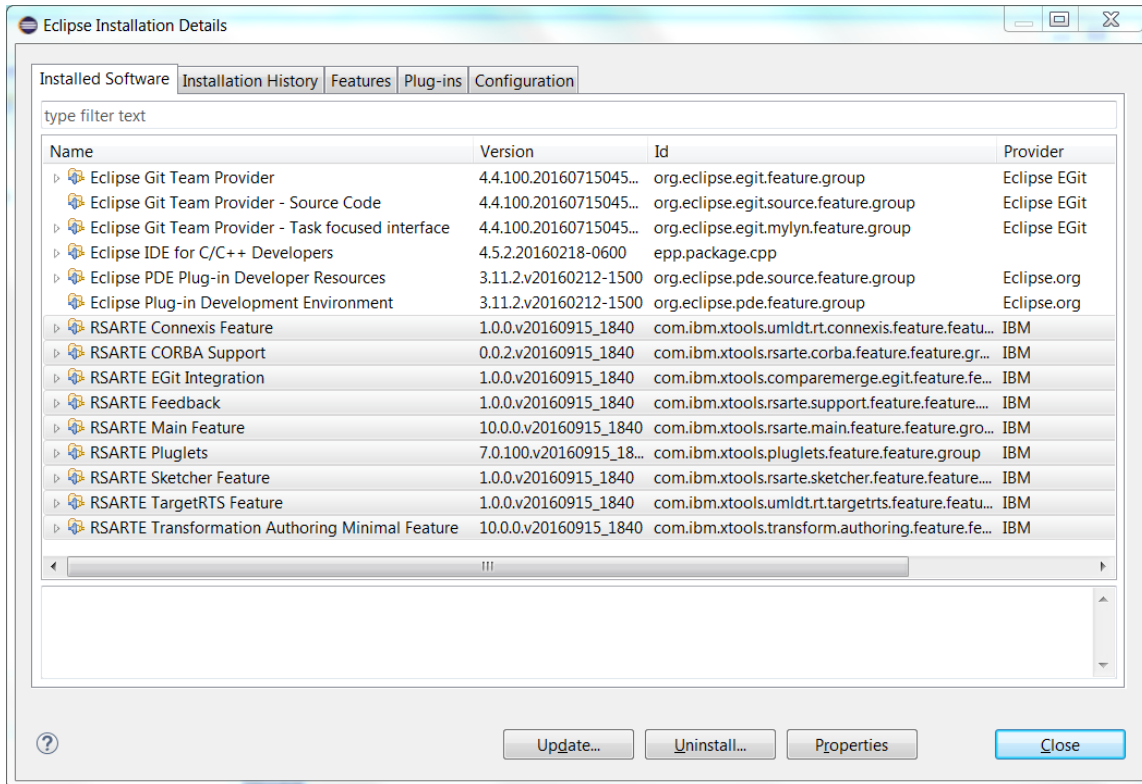
2.2   License Setup

RSARTE can start without having a license, but you will not be able to do much before you have applied a valid license. You do this using the command **Manage Licenses** in the **Help** menu.
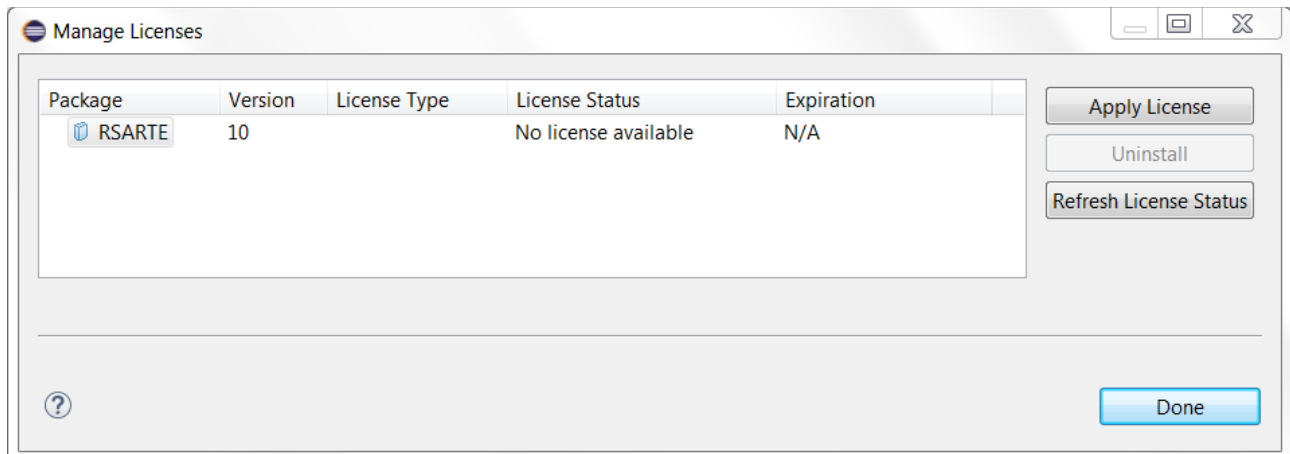
If the license status shows that no license is available (as in the picture above) you need to apply a license. Do this by selecting the line for RSARTE and press the **Apply License** button.

A dialog appears that lets you select which type of license to apply:
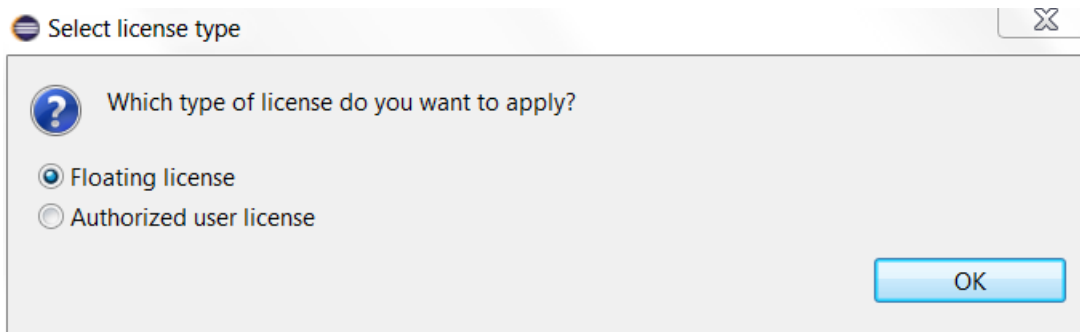
RSARTE supports two types of licenses; floating and authorized user licenses. The steps for applying them are described below.

NOTE: After a license has been applied you must restart RSARTE.

2.2.1 Floating License
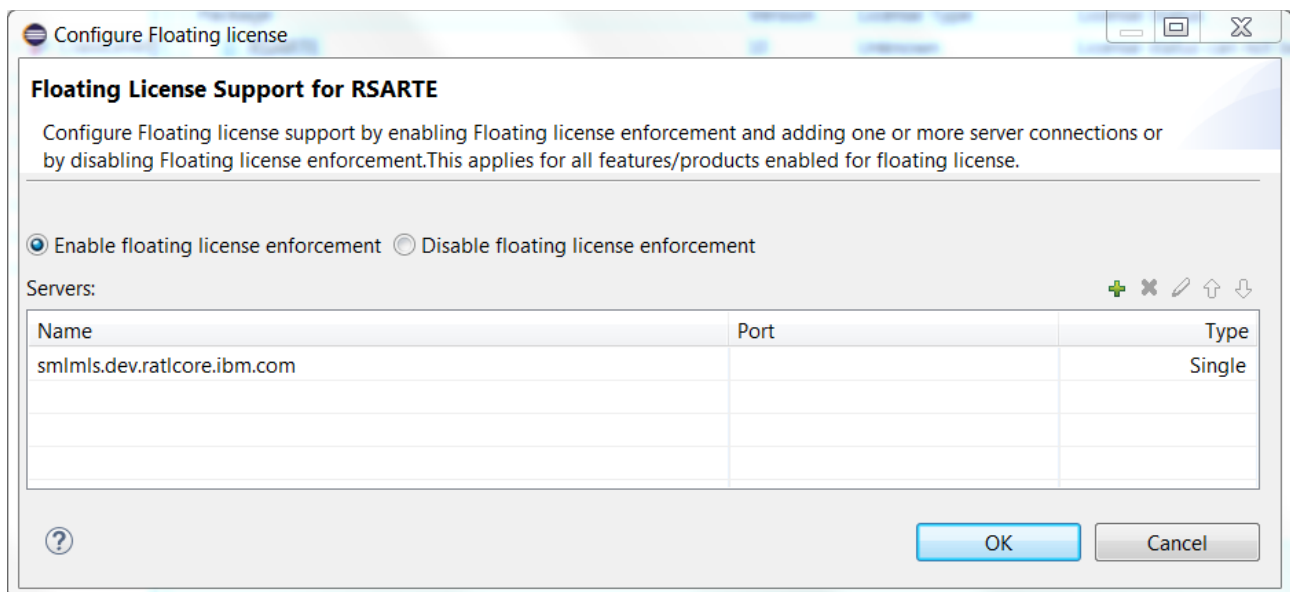
A floating license resides on a FLEX license server and can be checked out or in by different users over time. Hence, several users can share a single floating license as long as they don't need it at the same time.

The dialog for configuring a floating license is shown below.

Make sure that floating license enforcement is enabled, and then use the ![plus] button to add the necessary information about your license server. If you want you can specify additional license servers to have some reduncancy in case the first one does not respond.

Press **OK** and confirm that the applied license appears as a valid license in the table.

Package	Version	License Type	License Status	Expiration
📦 RSARTE	10	Floating	License key available.	15-01-2017

Finally you must restart RSARTE for changes to take effect.

2.2.2 Authorized User License

An authorized user license is based on a license key. Each user which applies such a license key is authorized to use a specific version of RSARTE for a specific period of time (or for ever, in case of a permanent license).
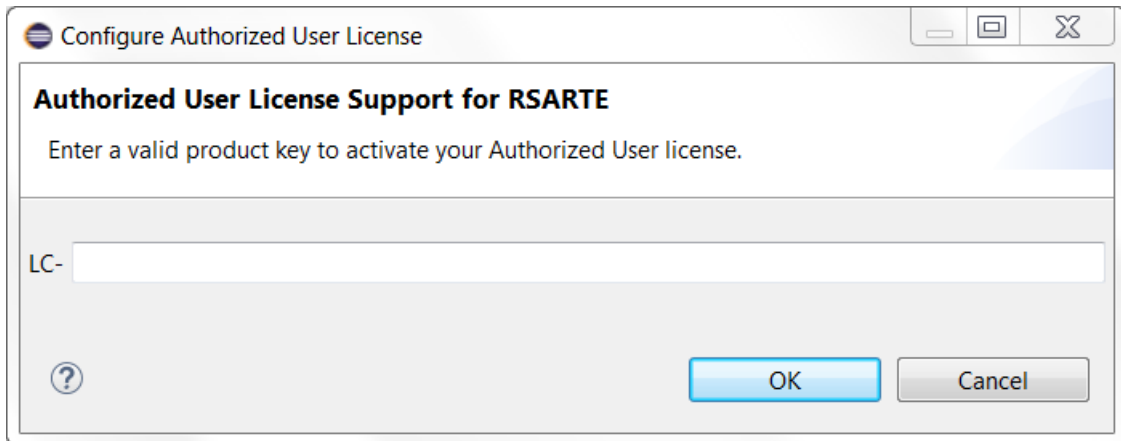
The dialog for entering the license key looks like this:

Enter the license key you have received from IBM. Then press **OK** and confirm that the applied license appears as a valid license in the table.

Package	Version	License Type	License Status	Expiration
RSARTE	10	Trial (mattiasM)	License key available	Dec 31, 2016

Finally you must restart RSARTE for changes to take effect.

2.3   Update

If your Eclipse already contains a version of RSARTE, you can update it to a later version. The steps you follow then are the same as described above. The only difference is that you will get a message telling you that some or all of the selected RSARTE features are already installed, and that an update will be performed.

It is normally not necessary to uninstall the old version of RSARTE before installing the new version.

If you are installing from a repository that is being updated with new releases of RSARTE you can also update your local installation using the Eclipse command **Check for Updates** in the **Help** menu.

2.4   Uninstall

You can uninstall RSARTE from the **About** dialog. Press the **Installation Details** button and then go to the **Installed Software** tab.

1.   Select all lines starting with "RSARTE"

- **NOTE:** In case RSARTE was installed from command line (as described in the next chapter), you may see products grouped by several RSARTE categories. In this case just select all top RSARTE categories.

2.   Press the **Uninstall...** button
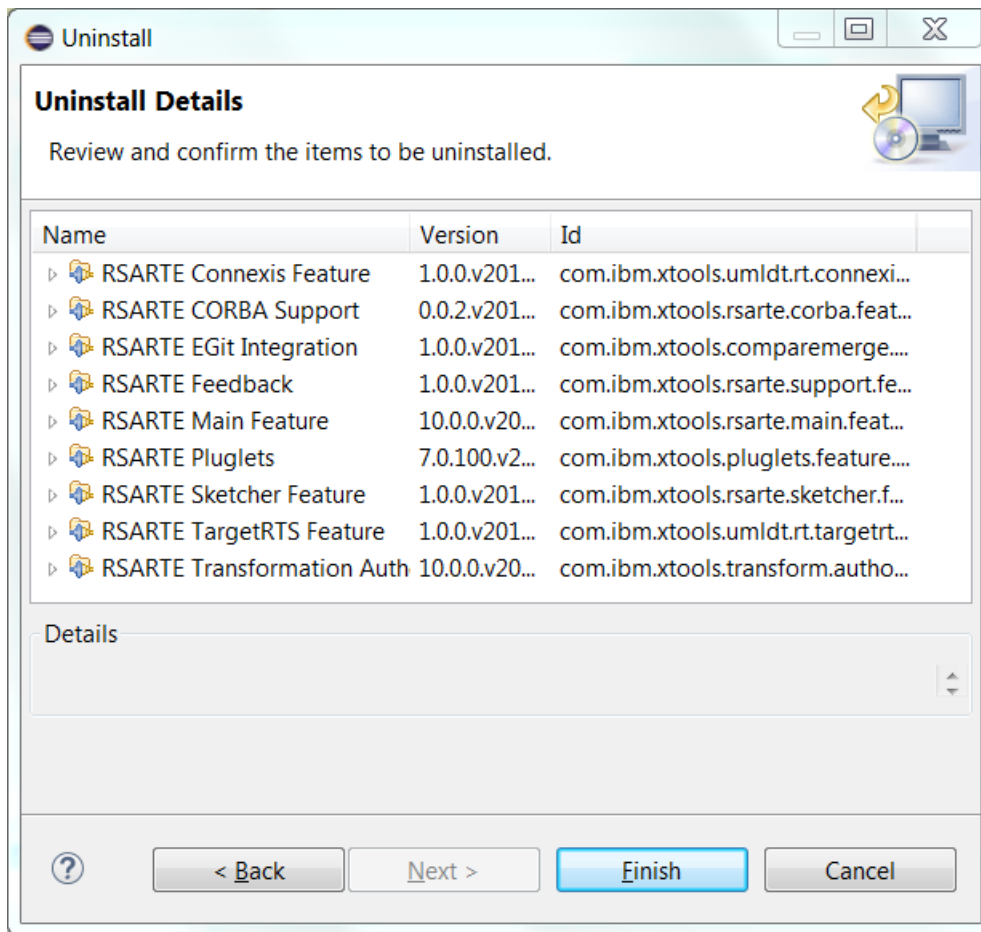
3. Press **Finish**
4. After RSARTE has been uninstalled, you will be asked to restart Eclipse. Accept it by pressing **Yes**.
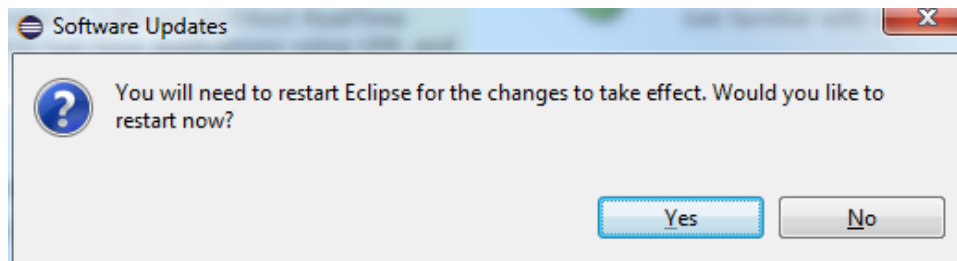
3 Installing from command line

Installation from the command-line makes use of the P2 director application which is part of Eclipse. There are two ways to invoke this application:

1. **Using Java**
   ```
   java -jar
   <eclipse_install_plugin_dir>/org.eclipse.equinox.launcher_1.3.100.v20150511-
   1540.jar -application org.eclipse.equinox.p2.director
   ```

   For example, on Windows it may look like this (exact version number of the JAR file may differ):
   ```
   java -jar
   C:\eclipseCppMars\eclipse\plugins\org.eclipse.equinox.launcher_1.3.100.v20150511-
   1540.jar -application org.eclipse.equinox.p2.director
   ```

2. **Using Eclipse**
   ```
   eclipse -nosplash -application org.eclipse.equinox.p2.director
   ```

   On Windows, use `eclipsec.exe` instead for better performance.

In the examples below we use `<p2_director>` to refer to one of the above ways to launch the P2 director application.

Note: The same prerequisites regarding running with sufficient privileges apply when using the P2 director application for installing RSARTE.

The RSARTE update site is a mandatory argument in all invocations of the P2 director application. You specify it using the `-repository` command-line argument. For example, on Windows it can look like this:

```
<p2_director> -repository jar:file:d:\downloads\rsart-p2-2016.38_v20160919_1840.zip!/
```

Depending on what action you want to perform, you will use additional arguments to the P2 director application, as described in the sections below.

3.1 Install

Make sure to use an installation of Eclipse that has no RSARTE installed. If RSARTE is already installed you should uninstall it (see 3.2) before installing a new RSARTE version.

Use this command for installing all RSARTE categories and also the version of EGit that is included in the update site:

```
<p2_director> -repository <rsarte_update_site> -installIU
rsarte.core,rsarte.extra,rsarte.integrations,rsarte.tools,org.eclipse.egit.feature.-
group -r http://download.eclipse.org/releases/mars
```

The category identifiers are given after the `-installIU` argument. See 3.3 for how to extract the identifiers for available categories from the update site.

3.2 Uninstall

The command for uninstalling all features is:

```
<p2_director> -repository <rsarte_update_site> -uninstallIU
rsarte.core,rsarte.extra,rsarte.integrations,rsarte.tools,org.eclipse.egit.feature.-
group
```

where the category identifiers are given after the `-uninstallIU` argument. See 3.3 for how to extract the identifiers for available categories from the update site.

3.3 Extract identifiers for install categories

The command for extracting the identifiers of available categories in the RSARTE update site is:

Windows:

```
<p2_director> -repository <rsarte_update_site> -list | findstr "rsarte." | findstr /V
"com.ibm.xtools."
```

Linux:

```
<p2_director> -repository <rsarte_update_site> -list | grep "rsarte." | grep -v
"com.ibm.xtools."
```

The interesting lines in the result will look like the following (the qualifiers may be different):

```
rsarte.core=1.0.0.7J--cJJICl8s735E3939M5I3I
rsarte.extra=1.0.0.7H-_AcJJB0KDUUEMz0EcEdTNDFD
rsarte.integrations=1.0.0.2--cJJubl8s735E3939M5I3I
rsarte.tools=1.0.0.2--cJJJgl8s735E3939M5I3I
```
The category identifier is the name before the equal sign.

If you also want to extract identifiers for non-RSARTE categories, such as EGit, you can skip the filtering after the `-list` option and instead redirect the output to a text file. For example, you will then find the category `org.eclipse.egit.feature.group` which can be used for installing EGit.

4 Installing RSARTE using the Eclipse Installer

The Eclipse Installer is a tool suitable for automating Eclipse based installations. You can find more information about the Eclipse Installer at https://wiki.eclipse.org/Eclipse_Installer. This page also contains instructions on how to download and install the Eclipse Installer.

NOTE: You must use version 1.4.0 or later of the Eclipse Installer. Installation errors will occur if you attempt to install RSARTE with an older version of the installer.

4.1 Basic usage of the Eclipse Installer

Using the Eclipse Installer to install RSARTE requires a setup file that specifies what should be installed. The minimal setup file for an RSARTE installation that installs all RSARTE features, including EGit, is the following:

```
<?xml version="1.0" encoding="UTF-8"?>
<setup:Product
    xmi:version="2.0"
    xmlns:xmi="http://www.omg.org/XMI"
    xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
    xmlns:setup="http://www.eclipse.org/oomph/setup/1.0"
    xmlns:setup.p2="http://www.eclipse.org/oomph/setup/p2/1.0"
    name="rsarte"
    label="RSARTE">
  <version name="mars"
      label="Mars"
      requiredJavaVersion="1.8">
    <setupTask
        xsi:type="setup.p2:P2Task"
        label="RSARTE including Eclipse Mars">
      <requirement
          name="epp.package.cpp"
          versionRange="[4.5.0,4.6.0)"/>
      <requirement
          name="org.eclipse.platform.feature.group"
          versionRange="[4.5.0,4.6.0)"/>
      <requirement
          name="org.eclipse.rcp.feature.group"
          versionRange="[4.5.0,4.6.0)"/>
      <requirement
          name="org.eclipse.sdk"
          versionRange="[4.5.0,4.6.0)"/>
      <requirement name="org.eclipse.jgit.feature.group"/>
      <requirement name="org.eclipse.egit.feature.group"/>
      <requirement name="org.eclipse.jgit.pgm.feature.group"/>
      <requirement name="rsarte.core"/>
      <requirement name="rsarte.extra"/>
      <requirement name="rsarte.integrations"/>
      <requirement name="rsarte.tools"/>
      <repository
          url="http://download.eclipse.org/releases/mars"/>
      <repository
          url="url_to_rsarte_repository"/>
    </setupTask>
```

```
    </version>
    <description>RSARTE Installation Script</description>
</setup:Product>
```

You can copy the text above and replace **url_to_rsarte_repository** with your local RSARTE 10 repository location and use a file with this contents as a starting point for your eclipse installer setup script. Note that copying from PDF format may change the hyphens in the text ("-") and introduce "soft hyphens". So check that the "-" characters still remain after copying.

Here is an example of what the repository URL for a local RSARTE 10 repository can look like in the setup script:
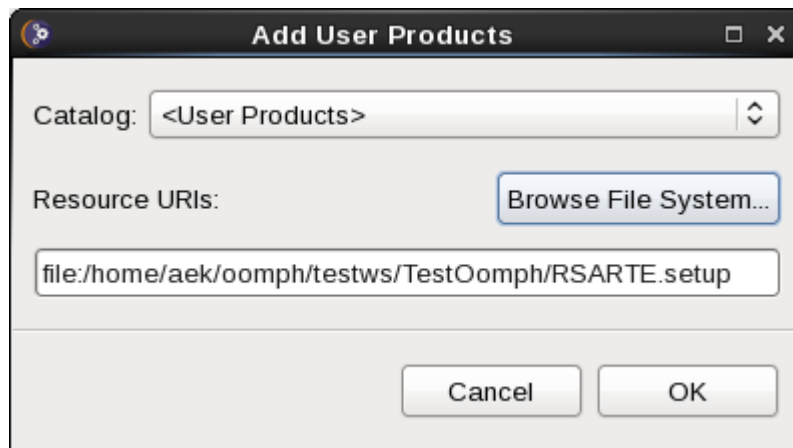
```
<repository url="file:///C:/rsarte/patches/rsart-p2-2016.38_v20160916_1344"/>
```

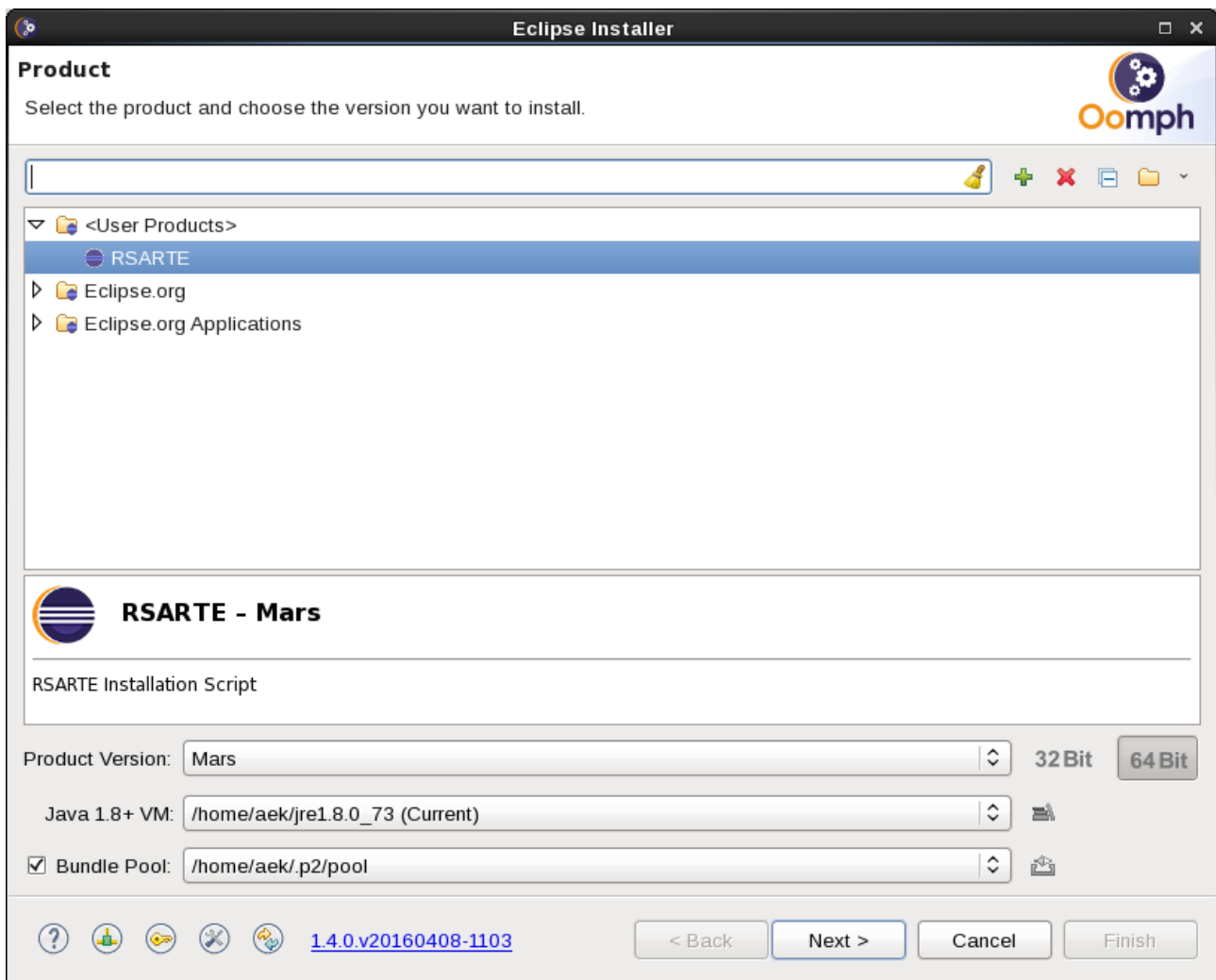To install RSARTE start the Eclipse installer and switch to Advanced Mode.
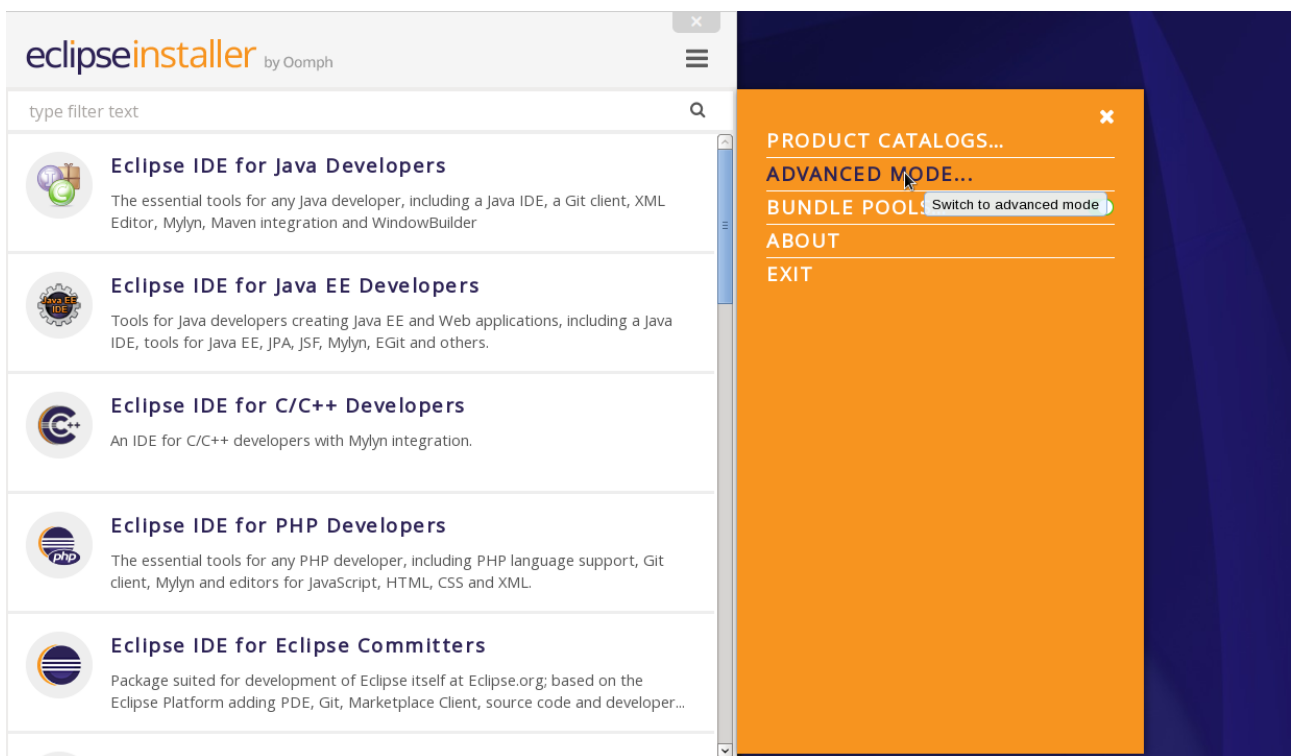
Use the command **Add user products** to choose your setup file.

You can now install RSARTE from the main Eclipse Installer page by selecting **RSARTE installer** and pressing **Next >**.

In the subsequent dialogs the default values works fine, even though you may want to modify the installation folder name.

5 Shared Installations and Pre-Configured License Setup

If you would like to share one installation among a group of users, e.g. using a network installation, some special considerations concerning the license setup are needed. The main issue is that if using a straight forward approach to installation, then each user that starts RSARTE will have to set up the license server URL at first usage.

To avoid this problem and to configure the license setup for all users during the installation of RSARTE, the following must be taken into account:

- Define a license policy file BEFORE installing RSARTE

- Use the location of the license policy file during installation to avoid the manual license setup

In the following two sections we will look at the licence policy file, the related system properties and how to fix a pre-configured license setup for a shared installation scenario. We will also discuss some constraints when using a read only installation structure.

5.1 License Policy File and License Related System Properties

A license policy file is an xml file called `licensep2.opt` that is used by RSARTE to find out where to look for licenses. This file is in a single-user installation modified automatically when using the **Help->Manage Licenses** command in RSARTE. A simple example of a license policy file is the following:

```
<?xml version="1.0" encoding="UTF-8"?>
<license key="authorized-user-license-key">
   <flex enabled="true" readonly="false">
     <server name="my.license.server" port=""/>
   </flex>
   <offeringorder readonly="false">
     <offering
         id="com.ibm.rational.software.architect.rt.10"
         version="10.0.0"
         name="RSARTE"/>
   </offeringorder>
   <componentorder readonly="false"/>
</license>
```

Depending on if you use floating licenses or authorized user licenses, this file will look slightly different. If only floating licensing is used then the "key" attribute for the "license" tag can be omitted. If only authorized user licensing is used, then the "enabled" attribute of the "flex" tag can be set to false.

The location of this file is given by a system property called **com.ibm.cic.licensing.p2.home.dir** that is defined in the **config.ini** file in **configuration** folder in your RSARTE Eclipse installation. The folder identified by this property must contain the structure: **ibm/p2/license/licensep2.opt**.

Another system property that is relevant for license setup is **install.lic.p2.home**. The key feature of this property is that if this is defined when installing RSARTE, then the value will be used to define the license policy folder structure location and thus to define **com.ibm.cic.licensing.p2.home.dir**.

5.2 Pre-Configured License Setup

To pre-configure the license before installing RSARTE follow these steps:

- Define a license policy file **licensep2.opt** with suitable contents located in a folder structure **ibm/p2/license**.

- Give the system property **install.lic.p2.home** the value of the folder containing the **ibm/p2/license folder** structure. This can be done e.g. by adding a definition in the **eclipse.ini** file in the target eclipse installation or by providing the definition as a command line argument. As discussed in section 5.3 the **eclipse.ini** path is recommended.

- Install RSARTE as usual

5.3 Read-Only Installation

In a shared installation scenario it is common to have the installation folder to be read-only for regular users. In general this works for an RSARTE installation but there is one constraint:

- If a scheme is used to dynamically provide end users with plugin updates when starting RSARTE (e.g. using dropin folders) then due to the way eclipse works it is necessary to have the system property **install.lic.p2.home** assigned to the path of the folder containing the **ibm/p2/license** folder structure also when running RSARTE. The easiest way to accomplish this is to add the definition to the **eclipse.ini** file in the RSARTE installation.

6 Post-Installation Setup

After installation you normally want to do some post-installation setup tasks before starting to use RSARTE. Please refer to this article for information about setup tasks that are commonly needed for performance and other reasons.

Also note that currently RSARTE does not work well with the CDT Code Analysis feature ("Codan"). You should therefore disable all options for code analysis in *Preferences – C/C++ - Code Analysis* before starting to work with RSARTE.