# Red Hat Developer Tools 1

# Using Eclipse 4.16

Installing Eclipse 4.16 and the first steps with the application

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## Legal Notice

## Abstract

Information for users installing and starting to use Red Hat Developer Tools.

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# CHAPTER 1. ECLIPSE 4.16

Red Hat Developer Tools for Red Hat Enterprise Linux 7 and Red Hat Enterprise Linux 8 is an offering for developers on the RHEL platform that includes Eclipse 4.16, which is based on the Eclipse Foundation's 2020-06 release train.

The Eclipse development environment provides tools for each phase of the development process. Eclipse 4.16 on RHEL 7 supports C, C++, and Java development, on RHEL 8 Eclipse supports Java development only. Additional components can be installed.

To learn more about Eclipse, see the main Eclipse foundation page .

**Sample Eclipse session**
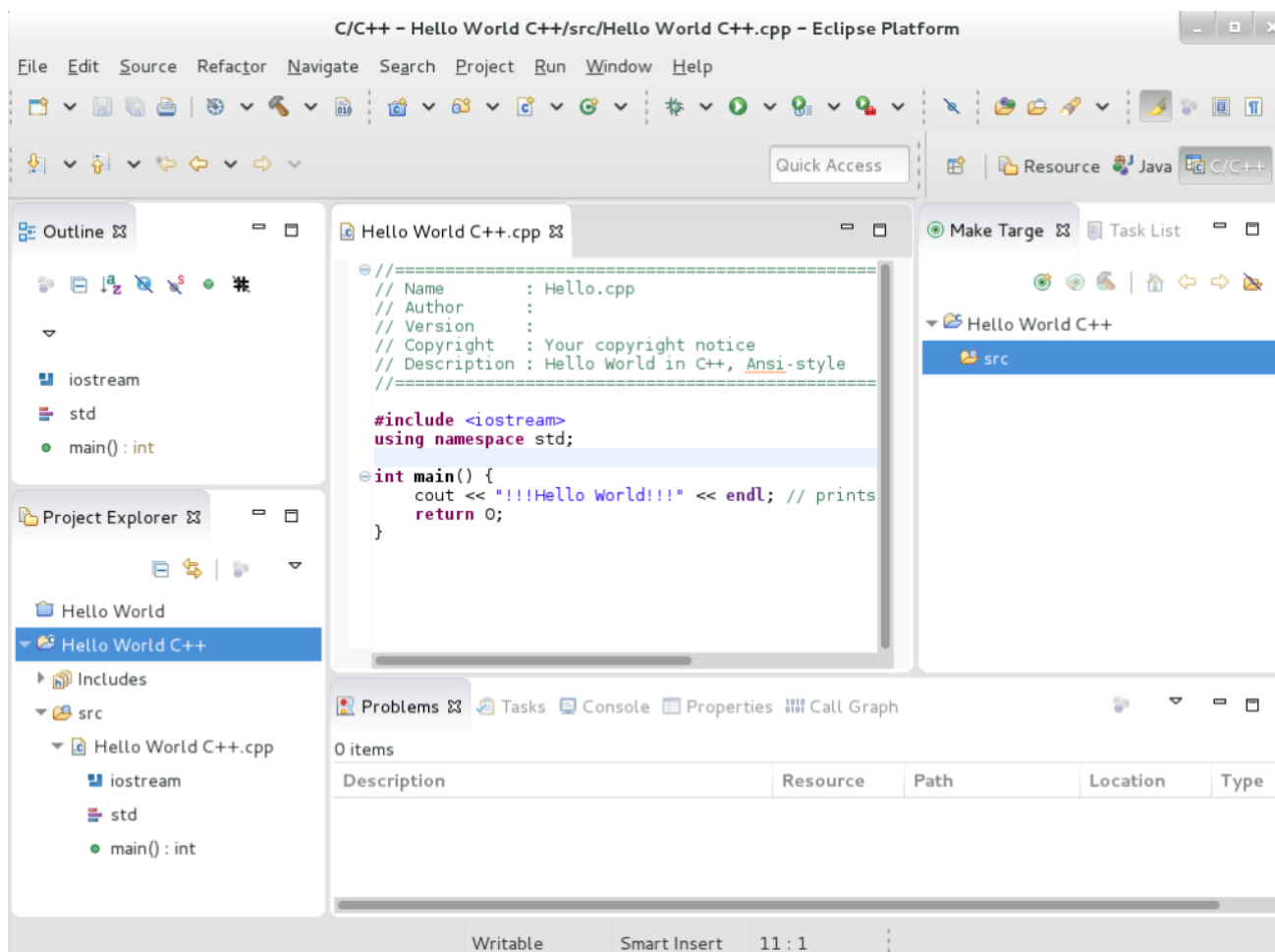


Eclipse provides a graphical development environment and is therefore an alternative to using the command-line interface.

For an overview of how to develop applications for Red Hat JBoss Middleware or for support of OpenShift Tools, see Red Hat Developer Studio.

## 1.1. ENABLING ACCESS TO ECLIPSE RPMS ON RED HAT ENTERPRISE LINUX 7

Eclipse is part of the Red Hat Developer Tools content set for RHEL 7. To install Eclipse, enable the Red Hat Developer Tools, Red Hat Software Collections, and Optional repositories using the Red Hat Subscription Management utility.

**Prerequisites**

- The host must be registered and attached to a subscription. For more information on registering your system using Red Hat Subscription Management and associating it with subscriptions, see the Red Hat Subscription Management collection of guides.

**Procedure**

Choose the system *variant*, either **workstation** or **server**, to use in the following commands. Red Hat recommends to choose **server** for access to the widest range of development tools.

1. Enable the **rhel-7-*variant*-devtools-rpms** repository to access Red Hat Developer Tools:

   ```
   # subscription-manager repos --enable rhel-7-variant-devtools-rpms
   ```

2. Enable the **rhel-*variant*-rhscl-7-rpms** repository to acces Red Hat Software Collections:

   ```
   # subscription-manager repos --enable rhel-variant-rhscl-7-rpms
   ```

3. Enable the **rhel-7-*variant*-optional-rpms** repository to access additional components:

   ```
   # subscription-manager repos --enable rhel-7-variant-optional-rpms
   ```

### Optional: Enabling the Red Hat Developer Tools debuginfo repositories

The Red Hat Developer Tools offering also provides **debuginfo** packages for all architecture-dependent RPMs in the repositories. These packages are useful for core-file analysis and for debugging Eclipse itself.

**Procedure**

- Enable the Red Hat Developer Tools **debuginfo** repositories and replace *variant* with the Red Hat Enterprise Linux system variant (**server** or **workstation**):

  ```
  # subscription-manager repos --enable rhel-7-variant-devtools-debug-rpms
  ```

- Enable the Red Hat Software Collections debuginfo repository:

```
# subscription-manager repos --enable rhel-__variant__-rhscl-7-debug-rpms
```

**Additional resources**

- For details on installing, understanding, and using the **debuginfo** packages, refer to Debugging a Running Application.

- For more information on registering your system using Red Hat Subscription Management and associating it with subscriptions, see the Red Hat Subscription Management collection of guides.

- For detailed instructions on managing a subscription to Red Hat Software Collections, see the Red Hat Developer Toolset User Guide Section 1.4. Getting Access to Red Hat Developer Toolset.

## 1.2. INSTALLING ECLIPSE

The following section describes how to install Eclipse.

**Prerequisites**

- Eclipse is available only on the AMD64 and Intel 64 architecture.

- On RHEL 7, the repositories must be enabled as per Section 1.1, "Enabling access to Eclipse RPMs on Red Hat Enterprise Linux 7".

**Procedure**

- On RHEL 7, run the following command:

```
# yum install rh-eclipse
```

- On RHEL 8, run the following command:

```
# yum module install eclipse
```

## 1.2.1. Installing additional Eclipse components for RHEL 8

Eclipse 4.16 on RHEL 8 supports Java development only. To install more components from the upstream repositories, for example to support **C**, **C++** or **Git**, use the Install New Software wizard or Eclipse Marketplace Client.

**Procedure**

- To use the Install New Software wizard for the installation of additional components, in the main menu click **Help > Install New Software** and follow the instructions on the screen.

- To use the Marketplace Client for the installation of additional components, follow the instructions in Section 1.2.1.1, "Example: Installing C and C++ Development Tooling (CDT) using the Eclipse Marketplace Client".

### 1.2.1.1. Example: Installing C and C++ Development Tooling (CDT) using the Eclipse Marketplace Client

**Prerequisites**

- Eclipse Marketplace Client must be installed.

To install the Eclipse Marketplace Client using the Install New Software wizard, in the main menu select **Help > Install New Software**, select **Work with: --All Available Sites--** and choose **Marketplace Client** under the **General Purpose Tools** tab. Click **Next >** and follow the instructions on the screen.
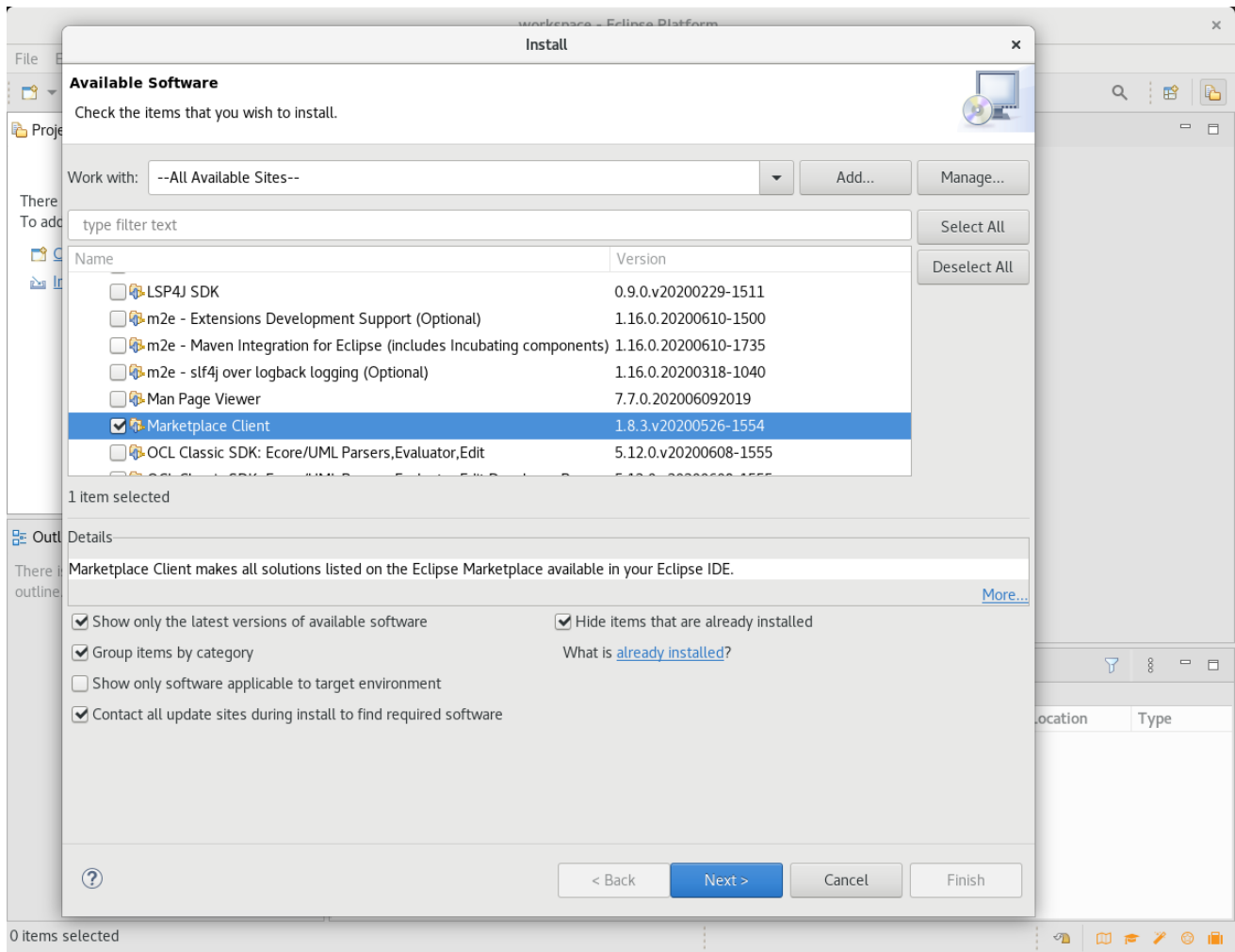
- To install the Eclipse Marketplace Client from the command line, execute the following command while Eclipse is not running:

```
$ eclipse -noSplash -application org.eclipse.equinox.p2.director -repository
https://download.eclipse.org/releases/2020-09 -i org.eclipse.epp.mpc.feature.group
```

Eclipse Marketplace Client is installed.

**Procedure**

1. From the main menu, select **Help > Eclipse Marketplace**.

2. In Eclipse Marketplace, use the **Find** field to search for the wanted component, in this case CDT, and press **Go**.
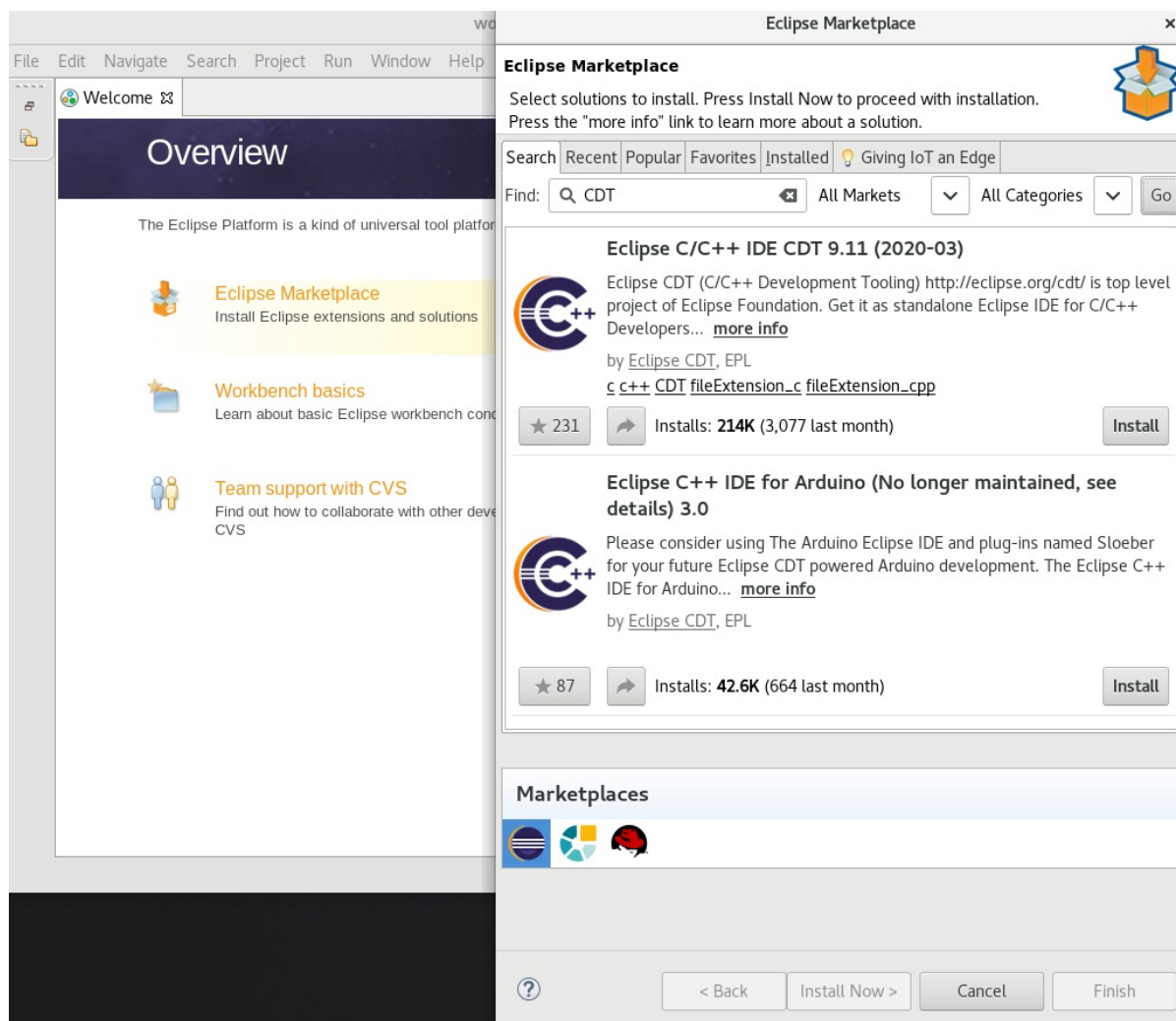
3. Click the **Install** button to start the installation and follow the instructions on the screen.

**Additional resources**

- For a list of available components, see Section 1.4, "Eclipse Components".

## 1.3. STARTING ECLIPSE

### 1.3.1. Starting Eclipse from the GUI

To start Eclipse from the GUI, complete the following steps:

- Click **Applications** > **Programming** > **Red Hat Eclipse**.

### 1.3.2. Starting Eclipse from the command line

To start Eclipse from the command line, type the following at a shell prompt:

- On RHEL 7:

  ```
  $ scl enable rh-eclipse eclipse
  ```

- On RHEL 8:

> $ eclipse

While starting, Eclipse prompts you to select a *workspace* directory for your projects. You can use **~/workspace/**, the default option, or click **Browse** and select a custom directory. You can also select **Use this as the default and do not ask again** to prevent Eclipse from displaying this dialog box again. Click **OK** to confirm the selection and proceed with the start.

## 1.4. ECLIPSE COMPONENTS

The Eclipse development environment is provided as a set of RPM packages. The set contains the following Eclipse components:

Table 1.1. Eclipse Components on RHEL 7

| Package | Description |
| --- | --- |
| **rh-eclipse-eclipse-cdt** | The C/C++ Development Tooling (CDT) toolkit provides features and plug-ins for development in these two languages. |
| **rh-eclipse-eclipse-changelog** | The ChangeLog plug-in enables you to create and maintain changelog files. |
| **rh-eclipse-eclipse-egit** | EGit, a team provider for Eclipse, provides features and plug-ins for interaction with Git repositories. |
| **rh-eclipse-eclipse-emf** | The Eclipse Modeling Framework (EMF) enables you to build applications based on a structured data model. |
| **rh-eclipse-eclipse-gcov** | The GCov plug-in integrates the GCov test coverage program with Eclipse. |
| **rh-eclipse-eclipse-gef** | The Graphical Editing Framework (GEF) enables you to create a rich graphical editor from an existing application model. |
| **rh-eclipse-eclipse-gprof** | The Gprof plug-in integrates the Gprof performance analysis utility with Eclipse. |
| **rh-eclipse-eclipse-jdt** | The Eclipse Java development tools (JDT) plug-in. |
| **rh-eclipse-eclipse-jgit** | JGit, a Java implementation of the Git revision control system. |
| **rh-eclipse-eclipse-manpage** | The Man Page plug-in enables you to view manual pages in Eclipse. |
| **rh-eclipse-eclipse-mpc** | The Eclipse Marketplace Client. |

| Package | Description |
| --- | --- |
| **rh-eclipse-eclipse-pde** | The Plugin Development Environment for developing Eclipse plug-ins. |
| **rh-eclipse-eclipse-perf** | The Perf plug-in integrates the perf tool with Eclipse. |
| **rh-eclipse-eclipse-pydev** | A full-featured Python IDE for Eclipse. |
| **rh-eclipse-eclipse-remote** | The Remote Services plug-in provides an extensible remote-services framework. |
| **rh-eclipse-eclipse-rpm-editor** | The Eclipse Spec File Editor enables you to maintain RPM spec files. |
| **rh-eclipse-eclipse-systemtap** | The SystemTap plug-in integrates SystemTap with Eclipse. |
| **rh-eclipse-eclipse-subclipse** | Subclipse, a team provider for Eclipse allows you to interact with Subversion repositories. |
| **rh-eclipse-eclipse-valgrind** | The Valgrind plug-in integrates Valgrind with Eclipse. |
| **rh-eclipse-eclipse-webtools** | The Eclipse Webtools plug-ins. |

Table 1.2. Eclipse components on RHEL 8

| Package | Description |
| --- | --- |
| **eclipse-emf** | The Eclipse Modeling Framework (EMF) enables you to build applications based on a structured data model. |
| **eclipse-jdt** | The Eclipse Java development tools (JDT) plug-in. |
| **eclipse-pde** | The Plugin Development Environment for developing Eclipse plug-ins. |

## 1.5. ADDITIONAL RESOURCES

A detailed description of Eclipse and all its features is beyond the scope of this document. For more information, see the following resources.

Installed documentation

- Eclipse includes a built-in help system that provides extensive documentation for each integrated feature and tool. It is accessible from Eclipse's main menu: **Help** > **Help Contents**.

Other resources

- For a list of selected features and improvements in the latest version of the Eclipse development environment, see Chapter 2, *Changes in Eclipse 4.16*.

# CHAPTER 2. CHANGES IN ECLIPSE 4.16

Eclipse 4.16 ships with Red Hat Developer Tools and plug-ins from the 2020-06 release train that provide a number of bug fixes and feature enhancements.

This section lists notable new features and compatibility changes in this release.

Table 2.1. Significant package updates on RHEL 7

| | |
|---|---|
| **eclipse** 4.15 → 4.16 | Eclipse IDE and JDT/PDE plug-ins have been updated to version 4.16. For a more complete list of changes, see the Eclipse 4.16 – New and Noteworthy page.<br><br>Notable enhancements include:<br><br>• Java 14 is now supported by the Java Development Tooling (JDT). You can enable Java 14 preview features in the compiler preferences.<br><br>• New code cleanup options and code formatting options for record types.<br><br>• The integrated version of Apache Ant has been upgraded to version 1.10.8.<br><br>• The integrated version of JUnit5 has been upgraded to version 5.6.2.<br><br>• Improved presentation mode can now show invoked commands on a screen.<br><br>• Look and feel updates for light and dark themes. |
| **eclipse-cdt** 9.11.0 → 9.11.1 | The C/C++ Development Tooling has been updated to version 9.11.1. For details, see the upstream CDT 9.11.1 release notes.<br><br>• This minor update includes various fixes for the terminal view, indexer, and a code formatter. |
| **eclipse-linuxtools** 7.6.0 → 7.7.0 | The Linux Tools plug-ins have been updated to version 7.7.0. For details, see the upstream Linux Tools 7.7.0 release notes.<br><br>• In this update, the Docker Tooling is no longer shipped with Linux Tools. If you need Docker support, you can install it from the Eclipse Marketplace. |

| | |
|---|---|
| **eclipse-pydev** 7.5.0 → 7.6.0 | The PyDev plug-in has been updated to version 7.6.0, which introduces debugger improvements and adds support for Python 3.8 of Red Hat Software Collections (RHSCL). For details, see the upstream PyDev 7.6.0 release notes. |
| **eclipse-egit/jgit** 5.7.0 → 5.8.0 | The Git integration plug-ins have been updated to version 5.8.0. For details, see the upstream EGit 5.8.0 release notes and JGit 5.8.0 release notes.<br><br>Notable changes include:<br><br>• The Diff viewer outline has been improved.<br><br>• In the Repositories view, you can now filter tags.<br><br>• Support for cloning from local Git bundle files has been added. |
| **eclipse-webtools** 3.17.0 → 3.18.0 | The Web Tools Platform has been updated to version 3.18.0. For details, see the upstream Web Tools Platform 3.18 – New and Noteworthy and Web Tools Platform 3.18 – New and Noteworthy pages.<br><br>Notable changes include:<br><br>• Java 14 support has been added in faceted projects.<br><br>• Editor look and feel customizations have been improved. |
| **eclipse-m2e** 1.15.0 → 1.16.0 | The Maven integration plug-in has been updated to version 1.16.0. |

Table 2.2. Significant package updates on RHEL 8

| | |
|---|---|
| **eclipse** 4.15 → 4.16 | Eclipse IDE and JDT/PDE plug-ins have been updated to version 4.16. For a more complete list of changes, see the Eclipse 4.16 – New and Noteworthy page.<br><br>Notable enhancements include:<br><br>• Java 14 is now supported by the Java Development Tooling (JDT). You can enable Java 14 preview features in the compiler preferences.<br><br>• New code cleanup options and code formatting options for record types.<br><br>• The integrated version of Apache Ant has been upgraded to version 1.10.8.<br><br>• The integrated version of JUnit5 has been upgraded to version 5.6.2.<br><br>• Improved presentation mode can now show invoked commands on a screen.<br><br>• Look and feel updates for light and dark themes. |

Table 2.3. Deprecated functionality on RHEL 7

| | |
|---|---|
| Docker Tooling plug-in | Docker Tooling is no longer shipped as part of the Linux Tools plug-in. If you need Docker support, you can install it from the Eclipse Marketplace. |
| Javascript Development Tools (JSDT) | JSDT is no longer shipped as part of the **webtools** component. To develop JavaScript projects, install Wild Web Developer from the Eclipse Marketplace. |
| Dali JPA Tools | Dali is no longer shipped as part of the **webtools** component. If you need JPA/Database support, you can install Dali from the **Install New Software** dialog. |
| Mylyn | The Mylyn Task-Focused UI is no longer shipped as part of Eclipse. If needed, install it from the Eclipse Marketplace. |

Additional resources

For details on how to use the new features, see Eclipse Installed documentation.

# CHAPTER 3. KNOWN ISSUES IN ECLIPSE 4.16

This section details the known issues in Eclipse 4.16.

**Table 3.1. Known issues on RHEL 7 and RHEL 8**

| | |
|---|---|
| **Initializing Eclipse Error Reporting System** error | This error occurs when running a workspace created in an older version of Eclipse.<br><br>To work around this problem, start Eclipse with the **-clean** option to clear its dependency resolution cache:<br><br>• On RHEL 7:<br><br>`$ scl enable rh-eclipse "eclipse -clean"`<br><br>• On RHEL 8:<br><br>`$ eclipse -clean`<br><br>Eclipse will start without this error message. |
| NullPointerExceptions | NullPointerExceptions can occur when you install a plug-in from a third-party update site. In that case, Eclipse fails to start with a **NullPointerException** in the workspace log file.<br><br>To work around this problem, restart Eclipse with the **-clean** option to clear its dependency resolution cache:<br><br>• On RHEL 7:<br><br>`$ scl enable rh-eclipse "eclipse -clean"`<br><br>• On RHEL 8:<br><br>`$ eclipse -clean`<br><br>Eclipse will start normally. |

**Table 3.2. Known issues on RHEL 7**

| | |
|---|---|
| Debuginfo package conflicts | When you install a **debuginfo** package for the Eclipse collection, such as **rh-eclipse-eclipse-cdt-debuginfo**, its contents may conflict with the same package from an earlier collection. As a result, the installation of the **rh-eclipse debuginfo** package may fail if the same **debuginfo** package from the **rh-eclipse48** collection is installed. <br><br> To use **debuginfo** for the **rh-eclipse** collection, first uninstall the **debuginfo** packages from the **rh-eclipse48** collection using this command: <br><br> `$ yum remove rh-eclipse48*debuginfo` <br><br> The installation of the **debuginfo** packages from the **rh-eclipse** collection will now succeed. |
| Conflicts between the RHSCL **rh-maven33-scldevel** and **rh-maven35-scldevel** packages | This conflict affects the optional **rh-eclipse-scldevel** package. <br><br> The **rh-eclipse-scldevel** and **rh-eclipse46-scldevel** packages cannot be present simultaneously. |
| The **rh-eclipse-tycho** package conflicts with the same package from earlier collections, for example: **rh-eclipse48-tycho** | As a result, the installation of the **rh-eclipse-tycho** package may fail when the **rh-eclipse48-tycho** package is already installed. <br><br> You only need Tycho if you want to build or rebuild Eclipse or its plug-ins need Tycho. If needed, uninstall the **rh-eclipse48-tycho** package before installing the **rh-eclipse-tycho** package using this command: <br><br> `$ yum remove rh-eclipse48-tycho` <br><br> The installation of the **rh-eclipse-tycho** package will now succeed. |
| PyDev users may experience issues with the **pip** integration | Modules that are pre-installed by the system or RHSCL Python cannot be uninstalled by pip. Attempts to do so will result in **permission denied** errors. |
| PyDev shortcut to manage Python modules does not work | Using the **Ctrl**+**2** shortcut and selecting **pip** does not function properly. Attempts to use this shortcut therefore result in an **SWTException** in the workspace log. <br><br> Users can continue to manage their Python modules using the **PyDev** > **Interpreters** preference. |

| | |
|---|---|
| Incompatibilities between Eclipse Subclipse and base RHEL Subversion | Working copies of Subversion repositories created with Eclipse Subclipse are incompatible with the base RHEL version of Subversion. Using the **svn** command on such working copies may result in the following error:<br><br>```<br>$ svn up<br>svn: E155021: This client is too old to work with the working copy<br>```<br><br>To work around this problem, use the pure Java implementation of Subversion used by Eclipse Subclipse on the command line:<br><br>```<br># yum install rh-eclipse-svnkit-cli # Command line support for SVNKit<br>```<br><br>Now, use the **jsvn** command anywhere you would normally use the **svn** command:<br><br>```<br>$ jsvn up<br>Updating '.':<br>At revision 16476.<br>``` |

## Table 3.3. Known issues on RHEL 8

| | |
|---|---|
| Eclipse and **pki-deps** modules are not installable in parallel | The Eclipse module and the **pki-deps** modules cannot be installed in parallel in RHEL 8.3.0 because they contain the same packages in different versions, which leads to conflict. |

| Eclipse profiles have been removed | The unused profiles **c** and **everything** have been removed from the Eclipse module. |
| --- | --- |
| | To check whether you have the obsolete profiles installed, run: |
| | ``` # yum module list eclipse ``` |
| | The installed profiles have the **[i]** indicator next to their names. |
| | To ensure that the Eclipse module contains the correct metadata, remove the unused profiles and reinstall the module with the java profile: |
| | ``` # yum module remove -y eclipse # yum module reset -y eclipse # yum clean all # yum module -y install eclipse:rhel8/java ``` |
| | To install the Eclipse module from scratch, use the java profile: |
| | ``` # yum module -y install eclipse:rhel8/java ``` |