What's New in HCL RTist 11.3

updated for release 2023.13

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Overview

▸ RTist 11.3 is based on Eclipse 2022.06 (4.24)

▸ HCL RTist is 100% compatible with IBM RSARTE and all features in these two products are equivalent.

HCL RTist
Version: 11.3.0.v20230403_1425
Release: 2023.13

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Visit https://RTist.hcldoc.com/help/topic/com.ibm.xtools.rsarte.webdoc/users-guide/overview.html

eclipseIDE 2022-06

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Eclipse 4.24 (2022.06)

▶ Compared to RTist 11.2, RTist 11.3 includes new features and bug fixes from 4 quarterly Eclipse releases:

- 2021.09 (https://www.eclipse.org/eclipse/news/4.21/platform.php)

- 2021.12 (https://www.eclipse.org/eclipse/news/4.22/platform.php)

- 2022.03 (https://www.eclipse.org/eclipse/news/4.23/platform.php)

- 2022.06 (https://www.eclipse.org/eclipse/news/4.24/platform.php)

▶ For full information about all improvements and changes in these Eclipse releases see the links above

- Some highlights are listed in the next few slides…

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Eclipse 4.24 (2022.06)

▶ Eclipse now by default uses the external web browser

- The internal web browser has limitations and cannot show all web pages correctly

- Usage of the external web browser is therefore recommended, and having it as the default makes it easier to get started with RTist without having to configure the preferences in **General - Web Browser**.

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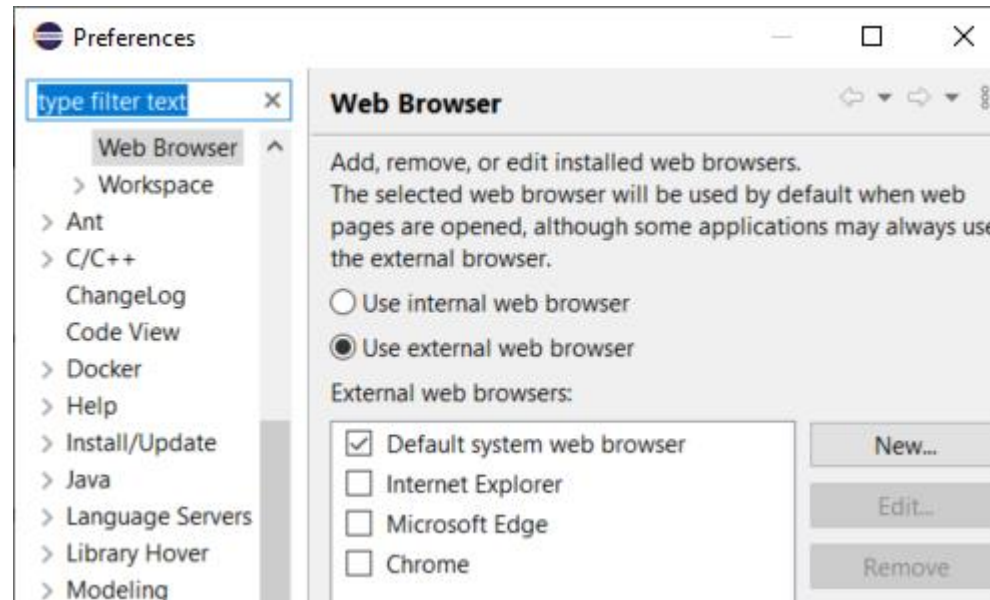
Eclipse 4.24 (2022.06)

▸ A new Launch Configuration View makes it easier to, for example, launch model or C++ debug sessions

 ▪ No need to first open the modal Launch Configuration dialog

 ▪ Launch configurations will appear in the view automatically as they are created

 ▪ Commonly useful commands for launching, terminating etc are available in the context menu

 ▪ To start a model debug session, just double-click a "TC launch configuration" in that view

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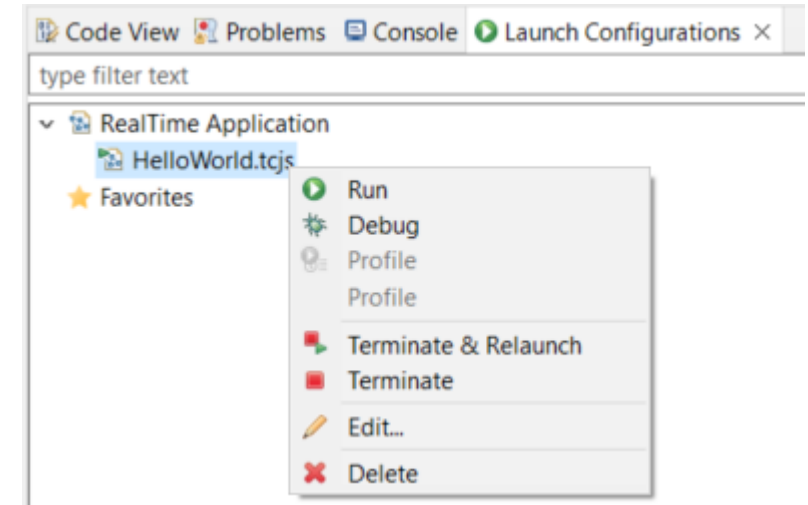
Eclipse 4.24 (2022.06)

▶ Multiple text selections

- You can now have multiple cursors in a text editor and make multiple selections

- Add a new cursor by **Alt+click**

- Multiple cursors can be useful when making the same change in multiple
  places in a file ("interactive find/replace")

- Several new text editor commands are available for working with multiple text selections

  - For example: **Multi selection up/down relative to anchor selection**
    (for creating a multi-selection from a selected word)

  - Note: You need to assign a key binding to these commands to use them!
    Use the preference page **General - Keys** and search for commands with
    "multi" in their name in the "Text Editing" category.


```
Showing code from the file    Initial
48 log.log("Getting indices");
49 long int i1 = getIndex1();
50 long int i2 = getIndex2();
51 long int i3 = getIndex3();
52 context()->abort();
53
```



```
Showing code from the file    Initial
48 log.log("Getting indices");
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50 int i2 = getIndex2();
51 int i3 = getIndex3();
52 context()->abort();
```

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Eclipse 4.24 (2022.06)

▶ Large file associations

- A new preference page allows to specify special editors to use for large files: **General - Editors - Large File Associations**

- Can help keeping a good performance in Eclipse even when opening large files

▶ Project encodings

- Projects will now automatically get its encoding set to the workspace encoding (by default UTF-8) when they are created

- For projects created in earlier versions of Eclipse a warning will appear

- A Quick Fix is available for setting the project encoding to the workspace encoding

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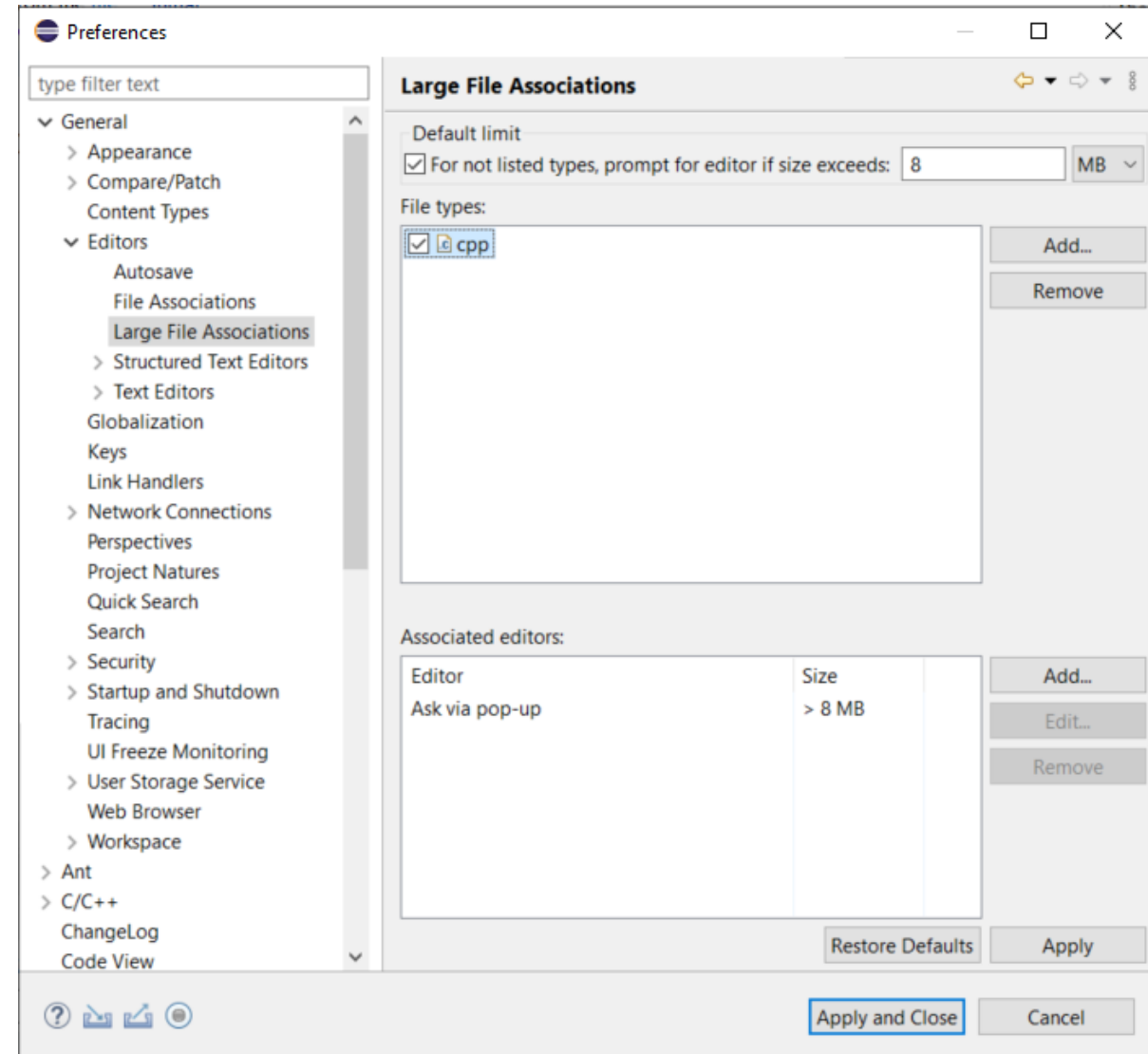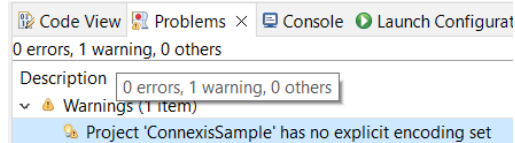
CDT 10.7 (included as part of Eclipse 2022.06)

▶ Separator lines in the Outline view

■ `#pragma mark` and `#pragma region` can be used for showing separator lines in the Outline view

■ Can help to more easily see and navigate to user code snippets in a generated C++ file

■ Automatically generating such separator lines for certain code snippets could be a future possibility...

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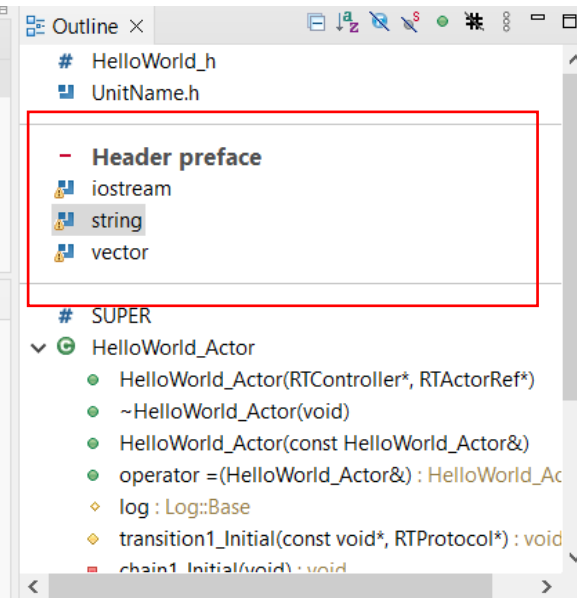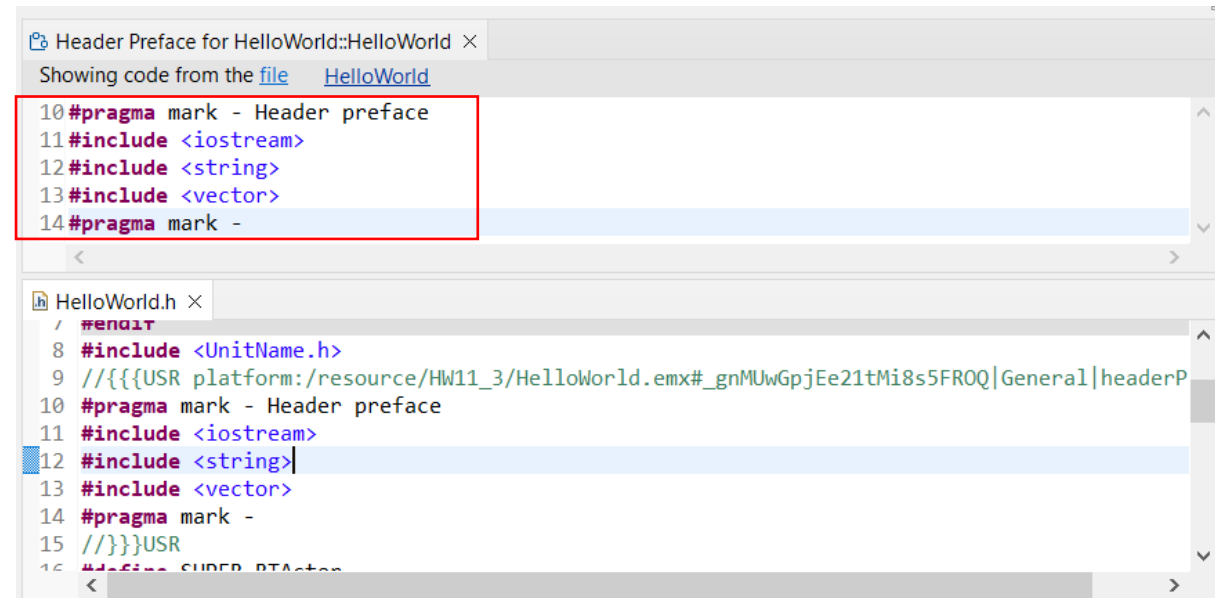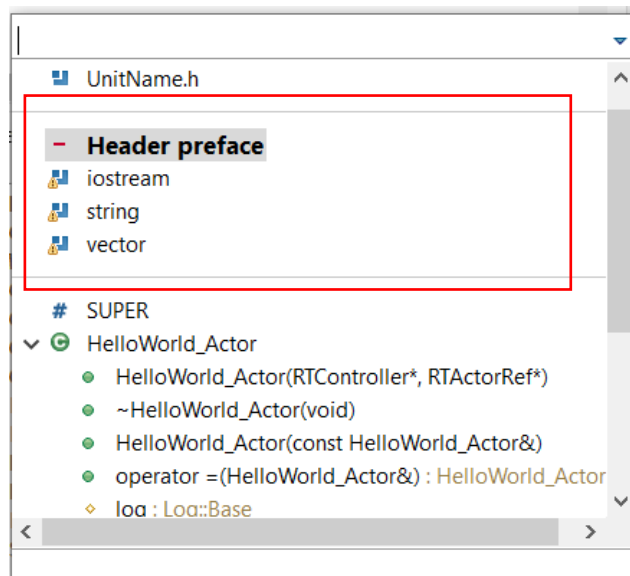
CDT 10.7 (included as part of Eclipse 2022.06)

▸ Improved code analysis for constexpr expressions

▪ A number of GCC/Clang built-in functions can now be used without confusing the Code Analysis feature

▸ For more information about CDT improvements see
https://wiki.eclipse.org/CDT/User/NewIn104
https://wiki.eclipse.org/CDT/User/NewIn105
https://wiki.eclipse.org/CDT/User/NewIn106
https://wiki.eclipse.org/CDT/User/NewIn107

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Newer EGit Version in the EGit Integration

▶ The EGit integration in RTist has upgraded EGit from 5.12 to 6.2

   ▪ This is the recommended and latest version for Eclipse 2022.06

▶ This upgrade provides several new features and bug fixes

   ▪ For detailed information about the changes see
   https://wiki.eclipse.org/EGit/New_and_Noteworthy/5.13
   https://wiki.eclipse.org/EGit/New_and_Noteworthy/6.0
   https://wiki.eclipse.org/EGit/New_and_Noteworthy/6.1
   https://wiki.eclipse.org/EGit/New_and_Noteworthy/6.2

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Java 17

▶ **RTist now should be run with a Java 17 JVM**

  ▪ Eclipse 2022.06 includes a Java 17 JVM which can be used. It's hence no longer necessary to update `eclipse.ini` to specify a different JVM for running RTist.

  ▪ Refer to the System Requirements for more details

▶ **Rebuild your plugins**

  ▪ If you have your own Eclipse plugins it's recommended to rebuild them with a Java 17 compiler before running them together with RTist 11.3.

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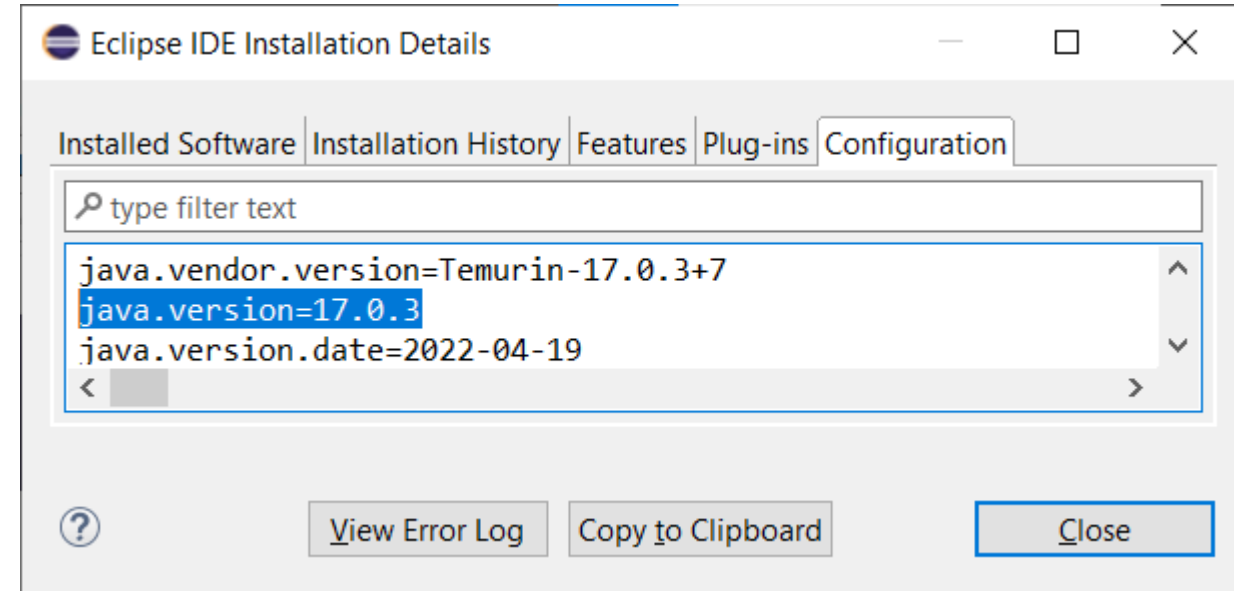
All Code Editor

▶ You can now choose to show all code snippets for an element in a single Code editor

- Significantly reduces the number of open code editors
(e.g. a class has 14 different code snippets which now can be shown in a single code editor, instead of in 14 separate code editors)

- Better overview by seeing related code snippets in a single place

- Easier to copy/paste code between related code snippets

▶ This is currently an experimental feature

- Enable it in preferences at **Experimental Features**

- There are limitations, for example:

  • Certain common keys sometimes don't work (Home, End, ...)

  • Not possible to collapse empty or resize non-empty snippets

  • ... and a few more

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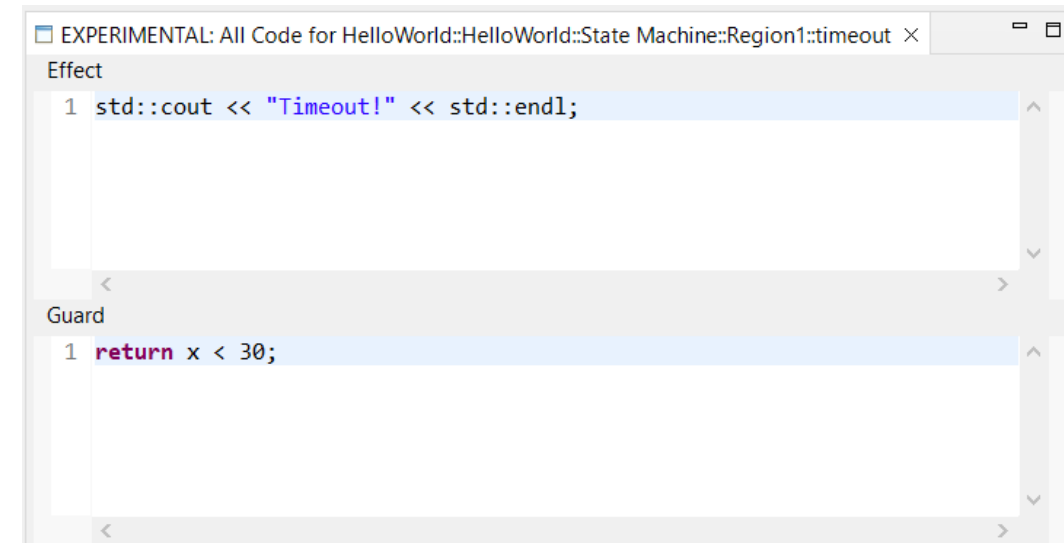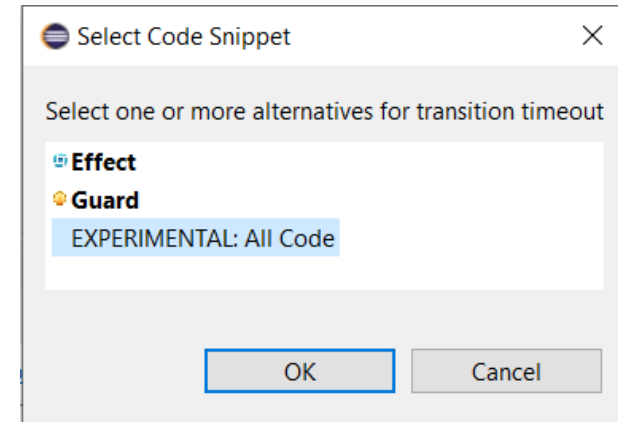
Navigation to Inherited Elements

▶ The context menu command "Show in Superclass" was previously only capable of navigating from a redefining element to the redefined element in the super capsule

▶ Now it can also be used for navigating to inherited elements

  - Works for states, transitions and ports

  - Useful for navigating inheritance hierarchies

▶ The command is available in both the Project Explorer and diagram context menus

  - The inherited element will be highlighted in the Project Explorer, and from there you can use the context menu command **Navigate - Navigate to Diagram** to view it in a diagram.
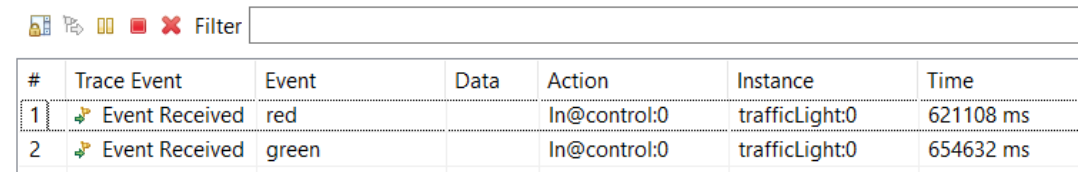
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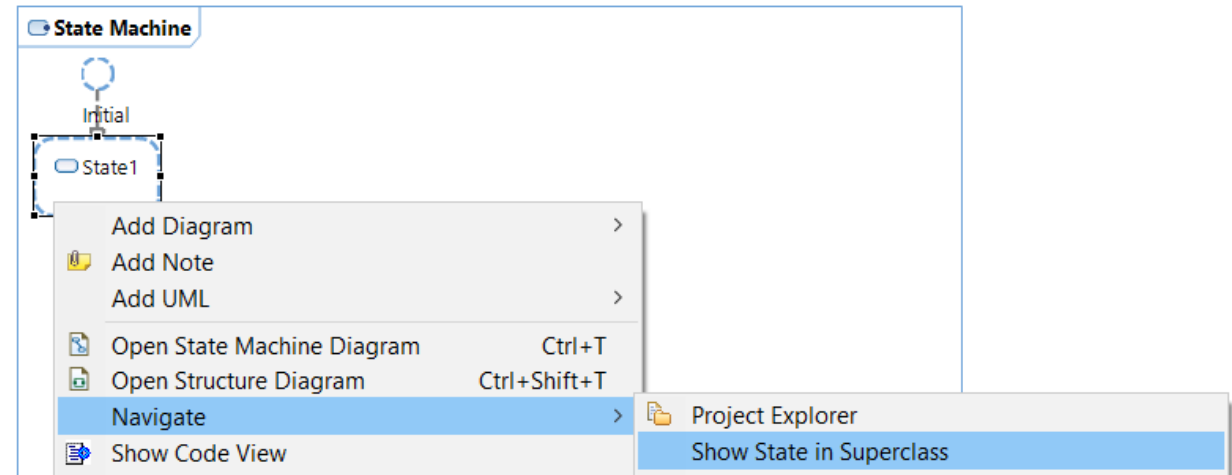
Tracing Port Instances

▸ **The Model Debugger now supports tracing events that are sent or received on specific port instances**

  ▪ Previously only the port itself could be added in the Capture tab in the Trace Editor, but now you can add one or several specific port instances

▸ **The common case when tracing events sent or received on all ports of a capsule has been optimized**

  ▪ Accomplished by adding the capsule to the Capture tab (or selecting "Capture from all elements")

  ▪ The trace performance is now better in case the capsule has many ports

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Warning if an Attribute Default Value is Ignored During Code Generation

▶ A class attributes with "Initializer Kind" = "Constructor" that has a default value needs a constructor to be generated where the corresponding constructor initializer can be generated
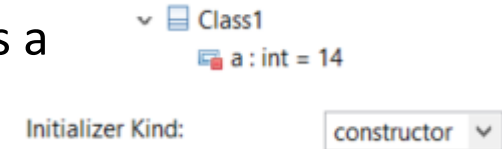
▶ But it's possible (by means of other properties) to disable generation of a constructor that can have initializers. For example:

    ▪ In this case the attribute will obviously not be initialized as expected (unless a user-defined constructor exists)

▶ The model compiler now detects this inconsistency and prints a warning

```
WARNING : HelloWorld::Class1::a : This attribute has a default value and the 'Initializer Kind'
property is set to 'Constructor', but no constructor will be generated where it can be
initialized. The attribute default value will be ignored.
```

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"Old-style" Code Generation for C++ 98 and Earlier

▸ Two new C++ code standards are now available

- **C++ 98**
 Works like "Older than C++ 11" worked before, i.e. generates code compliant with the C++ 98 standard

- **Older than C++ 98**
  Can be used if a very old C++ compiler is used that doesn't support all of C++ 98.
  For this code standard, C-style casts will be used instead of C++ casts.

▸ Note that for both these code standards you cannot use the latest version of the TargetRTS, since it requires C++ 11

▸ Use these code standards only if you use an old enough TargetRTS (11.0 2020.22 or older) and need to compile generated code with an old C++ compiler

- But now you can use the latest version of RTist even when targeting these old environments

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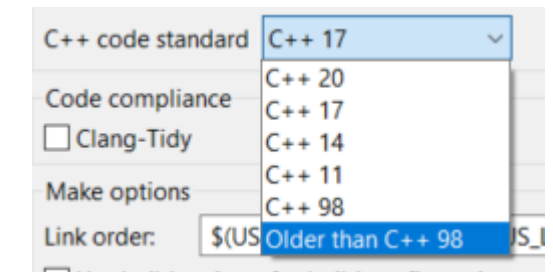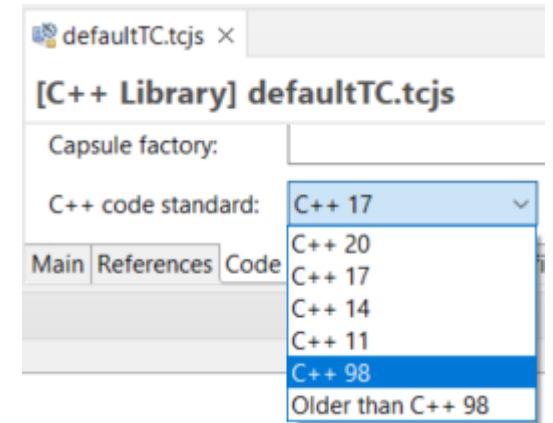
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BEYOND THE CONTRACT

$7 BILLION ENTERPRISE | **110,000** IDEAPRENEURS | **31** COUNTRIES

▶ WATCH THE FILM