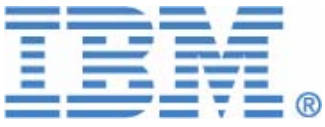
Rational. Rhapsody

IBM

Installation Guide

Rational Rhapsody Installation Guide



Before using the information in this manual, be sure to read the “Notices” section of the Help or the PDF available from **Help > List of Books**.

This edition applies to IBM® Rational® Rhapsody® 7.5 and to all subsequent releases and modifications until otherwise indicated in new editions.

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Welcome to IBM Rational Rhapsody

Systems engineers and software developers use IBM® Rational® Rhapsody® to create either embedded or real-time systems. However, Rational Rhapsody goes beyond defining requirements and designing a software solution. Rational Rhapsody implements the solution from design diagrams and automatically generating ANSI-compliant code that is optimized for the most widely used target environments.

With Rational Rhapsody, you have the ability to analyze the intended behavior of the application much earlier in the development cycle by generating code from UML and SysML diagrams and testing the application as you create it. Rational Rhapsody can be used for any of the following:

- Reactivity - Statecharts and events
- Time-based behavior - Timeouts
- Multi-threaded architectures - Active classes and protected classes
- Real-time environments - Direct support for several real-time, operating systems (RTOS)

Rational Rhapsody Installation Guide content

This guide describes how to load the Rational Rhapsody software onto your computer. This guide describes the following:

- Software prerequisites
- Obtain a software license
- Step descriptions and guidance for the installation wizard
- Installation instructions for both Microsoft® Windows® and Linux® systems
- Installation information for Rational Rhapsody add-on products, such as DoDAF and the systems engineering features
- Special instructions that relate to Rational Rhapsody for other products, such as Eclipse and Java™

Additional resources

In addition to the *Rational Rhapsody Installation Guide*, useful information is available in these resources:

- *Readme* file (release notes) for your Rational Rhapsody version are included in the product download in the `readme.htm` file (contains “What’s New” in this release and specific hardware and software requirements, as well as any limitations)
- *Fixed Defects List* of the corrected defects included in this product release (available on the IBM support site.

Third-party software products that are being added for use with Rational Rhapsody provide separate installation instructions.

Note

It is important that you read this installation guide and all related Rational Rhapsody information and any third-party providers before performing the installation.

If you need more help with the installation, the IBM support staff can provide troubleshooting assistance.

Rational Rhapsody installation

To prepare for the Rational Rhapsody installation, you should also become familiar with the information provided in the **Additional resources**.

This section describes the steps required to run an installation for a new version of Rational Rhapsody:

- **Obtaining a Rational Rhapsody license key**
- **Software prerequisites**
- **Installing Rational Rhapsody for Windows**
- **Installing on Linux systems**
- **Modifying, repairing, or removing Rational Rhapsody**

If you want to run an installation for a newer version of Rational Rhapsody that is already on your system, see **Upgrading to a later version**.

Obtaining a Rational Rhapsody license key

For IBM software licensing instructions, visit the **Rational Support Licensing** site.

To obtain your license key:

1. Click the **License Key Center** link on the Rational Support Licensing site.
2. Click Continue.
3. To log in to the License Key Center, type your e-mail address and your password. This password was sent to your e-mail address when your name was added to the License Key Center at the time of purchase or by your system administrator.
4. Follow the instructions for your IBM Rational software.

For more information, see the Quick Start Guide on the center.

The following Rational Rhapsody configurations require specific license types:

- If your company has individual C and individual C++ Rational Rhapsody licenses, you cannot open a C model in C++ or vice versa without a *multi-language Rational Rhapsody license*.
- Java is only available in a multi-language license. You can open a Java model in Rational Rhapsody C or C++ when using the multi-language license.
- The Eclipse plug-in for Rational Rhapsody is only available with Rational Rhapsody multi-language licenses.

Software prerequisites

Before beginning the installation, review the software prerequisites listed in this section and the release notes (`readme.htm`) for the hardware and any additional prerequisites specific to this release.

Installation preparation

As a general rule, you should add third-party software before installing Rational Rhapsody so that the Rational Rhapsody installation wizard can locate and link to those products during installation.

Note

You must add your compiler to your system before beginning the installation.

The following are some additional installation preparation guidelines:

- Review **Third-party tools** to determine whether your installation of Rational Rhapsody interacts with supported third-party software. Then follow the instructions supplied by third-party suppliers to run an installation for the software used in your development environment.
- Before installing the software with the XMI toolkit add-on, you must install the Java SDK on your system.
- Special Rational Rhapsody installation instructions for the software packages commonly used with Rational Rhapsody are also provided in these sections:
  - **Cygwin installation**
  - **Eclipse and CDT for C or C++ application development**

Eclipse and CDT for C or C++ application development

The following are the high-level steps required for the Eclipse plug-in installation for Rational Rhapsody Developer for C and/or C++:

1. Run the installation for the Eclipse and CDT, as described below. The CDT software is required if you are developing applications in C and/or C++.
2. Add the necessary compilers for the development language or languages you are using.
3. Install the Rational Rhapsody Developer for C and/or C++.

Note

There are two implementations of the Eclipse plug-in. See **Linking Rational Rhapsody to Eclipse** for a description of the differences between the Workflow and the Platform integrations.

To install Eclipse Ganymede and CDT for Windows:

1. Download the appropriate Windows version of Eclipse Ganymede from the site at **http://www.eclipse.org/downloads**.
2. There are two methods to download and add the CDT software:
   - Navigate directly to the `http://www.eclipse.org/cdt` site and download the preferred CDT version. Follow the installation instructions on the site.
   - Add CDT from inside Eclipse using the **Help > Software Updates** option and the Available Software tab to select the CDT version you need for application development. Follow the Eclipse installation instructions.

Note: CDT is not required for Java application development.

Preparing to install Rational Rhapsody in a Windows Vista environment

To install Rational Rhapsody on a computer that uses the Windows Vista® operating system, you must have administrator's rights to perform the installation. Then you need to follow the instructions in **Installing Rational Rhapsody for Windows**.

Preparing to install Rational Rhapsody Developer for C and C++

In order for a developer to generate code from Rational Rhapsody models, a compiler must be added and identified during the Rational Rhapsody installation. Among the compilers that can be used to build code from Rational Rhapsody Developer for C and C++ are Microsoft® Visual C++™ V6.0, Microsoft Visual Studio® 2008, and Cygwin™. See the release notes (`readme.htm`) for the complete list of compilers supported by Rational Rhapsody Developer for C and C++.

Note

Designer for Systems Engineers requires a compiler for model simulation. For more information, see **Installing Rational Rhapsody Designer for Systems Engineers**.

Preparing to install Rational Rhapsody Developer for Java

Rational Rhapsody Developer for Java requires the Java™ 2 Platform, Standard Edition Software Development Kit (J2SE™ SDK), formerly known as the Java Development Kit (JDK). The SDK is freely available from the IBM Java download site at:

http://www.ibm.com/developerworks/java/jdk

See the release notes (`readme.htm`) for the supported versions of Java SDK.

Preparing to install Rational Rhapsody Developer for Ada

Before you install Rational Rhapsody Developer for Ada, you must have the following software on your system:

- An Ada compiler, such as `GNAT`. See the release notes (`readme.htm`) for the list of supported compilers.
- Java 2 SDK (required by the code generator). See **Preparing to install Rational Rhapsody Developer for Java** for more information.
- The Rational Rhapsody Developer for C sources (required to recompile the Ada libraries).

Installing Rational Rhapsody for Windows

To install Rational Rhapsody on a Windows system:

1. In the Rational Rhapsody installation directory, click the `.msi` file to start the installation wizard.
2. The installation program displays a window welcoming you to the installation wizard. The wizard guides you through the installation process. Click **Next** to continue.

   Note: If the installation wizard detects a previous Rational Rhapsody version on your system, the wizard displays a **Modify, Repair**, or **Remove** window. See **Modifying, repairing, or removing Rational Rhapsody** for more information.
3. The IBM Software License Agreement displays. Read through the agreement and click the "I accept the terms in the license agreement" radio button and **Next** to continue.
4. Select only one edition of Rational Rhapsody to install:
   - Rational Rhapsody Developer (required for Eclipse users)
   - Rational Rhapsody Architect for Software (see **Installing Rational Rhapsody Architect for Software**)
   - Rational Rhapsody Architect for Systems Engineers (see **Installing Rational Rhapsody Architect for Systems Engineers**)
   - Rational Rhapsody Designer for Systems Engineers (see **Installing Rational Rhapsody Designer for Systems Engineers**)
5. Click **Next** to continue.
6. Accept the default installation directory or browse and select a different path. Click **Next** to continue.
7. If you are adding an edition that requires a language, such as Developer, you need to select one or more of the four supported languages (C++, C, Java, and Ada) for the generated code output. If you want to select the individual OS settings, select **Check for Real Time OS Settings**. Otherwise, leaving the check box clear selects the default environment settings and simplifies the installation process. Click **Next** to continue.
8. If you selected the Java language, select the development environment as IBM Java SDK 6.0 SR1, JDK 1.6, 1.5, or 1.4 and click **Next**.
9. If you selected the Java language, select the path (location) to the Java Developer Environment and click **Next**.

10. Select any of the add-ons products. Some require separate licenses.

- Rational Rhapsody Gateway - allows Rational Rhapsody to hook up with third-party requirements and authoring tools for requirements traceability. (The Rational Rhapsody Gateway version in this installation is coordinated with the Rational Rhapsody software version.)
- Rational DOORS Interface - tracks and manages design requirements throughout the lifetime of a project and to navigate online between the design and the requirements.
- Rational Rhapsody XMI Toolkit - XML Metadata Interchange imports legacy system code for reuse in a Rational Rhapsody project.
- Rational Rhapsody TestConductor™ Add On - Model Driven Testing automates tedious testing tasks; defines tests with code and graphically with sequence diagrams, statecharts, activity diagrams and flowcharts; and executes the tests interactively or in batch mode.
- Rational Rhapsody ATG - Automatic Test Generator engine in the Rational Rhapsody Testing Environment verifies the functionality of the system. It uses the UML model information and the generated source code as basis for analysis and to create executable test cases.
- Rational Rhapsody Rules Composer - editor for rules based model transformations (If you plan to use the Customizable Code Generation feature in Rational Rhapsody for C, you must add the Rules Composer add-on.)
- DoDAF Add On - requires license and .NET framework 1.1 and required for the DoDAF profile
- MODAF Add On - UK Ministry of Defence Architecture Framework
- Teamcenter Systems Engineering - requires license and .NET framework 1.1 (For more information about this installation, see **Setting up the UGS Teamcenter**.)
- Automotive - AUTOSAR system design requires a license and is only available for C language development and AutomotiveC, AUTOSAR, MicroC, and FixedPoint profiles.
- Systems Engineering Add-On (required for SysML and Harmony profile projects)
- System Architect Interface allows the Rational System Architect enterprise customers to import Rational System Architect DoDAF (non-ABM) into a Rational Rhapsody project (requires a separate Rational System Architect license)
- Visual Studio 2008 Workflow Integration

You must have purchased a specific license for many of the selected products.

Click **Next** to continue.

11. Select the installation type:
    - **Typical** - Includes the most common options. To launch the installation, click **Install**. To make changes, click **Back** and make your adjustments.
    - **Custom** - Choose this setup type if want to select your own specific installation items.
12. Click **Next** to continue.
13. Select the type and location of your Rational Rhapsody license and click **Next**.
14. Review the installation description and click **Install** if it is correct. Click **Back** if you need to make changes.
15. The installation status displays. Click **Finish** to complete the installation.

At this point, test your installation. See **Troubleshooting the installation** for more information.

Installing on Linux systems

Before installing Rational Rhapsody on a Linux system, you need to perform the following tasks:

- Copy files to the installation directory
- Apply operating system patches (if necessary)
- Mount the CD–ROM, if you are not using `automount`

Note

The Rational Rhapsody DoDAF, MODAF, and UPDM is supported on Linux. However, some products are not automatically generated. The OV-3, SV-3, SV-5, SV-6, and SV-7 products must be generated manually.

Installing Rational Rhapsody on Linux

To run the Rational Rhapsody installation on a Linux system:

1. Insert the distribution CD or use the downloaded file.
2. Open a new terminal window and change to the `cdrom` directory.
3. Run the installation script as shown.

   ```
   > ./INSTALL
   ```

   Note: Be sure to type the initial "`./`" before typing `INSTALL`.

   The system displays a welcome message.

4. The license agreement is displayed. Accept the license agreement by pressing **Enter**.
5. Enter the path of the directory in which you want to run Rational Rhapsody.

   Note: When entering the path, do not use a trailing slash. For example, use the following format: `/usr1/tools/rhapsody`

   ```
   Enter the numbers representing your choice of languages.
   Language Selection

   1: C++
   2: C
   3: Java


   Please select at least one of the above languages, as in 1, or 1,2,3
   etc.

   Depending on your language selections, the installation script
   displays questions to configure your development environment.
   ```

6. If you will be using C++, answer the questions about your compiler preferences.

```
Will you be using C++ code generation with Rhapsody? [Y/N]

The choices you make here set the default environment for generating
code. You can choose one or more options. If you answer Yes to any of
these compilers, you are prompted for the path of the respective binary
files.
```

7. If you will be using C, answer the questions about your compiler preferences.

```
Will you be using C code generation with Rhapsody? [Y/N]

The choices you make here set the default environment for generating
code. You can choose one or more options. If you answer Yes to any of
these compilers, you are prompted for the path of the respective binary
files.
```

8. If you will be using Java, enter the path for the Java Development Kit.

```
Please enter the Java Development Kits location.
```

9. Specify whether you will be using MontaVista 3.1.

```
Will you be using MontaVista 3.1 Generic x86 Industry Standard PC with
Rhapsody?
[Y/N]
```

10. The installation wizard copies the software from the source to the specified directory and indicates when the installation has finished.

Installing Rational Rhapsody on Linux as an application server

It is possible to install Rational Rhapsody on Linux as an “application server.” Using this configuration, you add Rational Rhapsody on a server that can be accessed by one or more clients over the network. Using the clients, you launch Rational Rhapsody on the server and display the program on the screen of the client. Although multiple users can run multiple Rational Rhapsody sessions on a single machine, each user has his own registry and rhapsody.exe.ini file, which is created when the program is started for the first time. This initialization file is located in ~/.mw/rhapsody.exe.ini, where "~" is your home directory.

The server (on which Rational Rhapsody runs) should be one of the supported platforms (Red Hat Enterprise Linux 4.0 and 5.0). The clients can be on any platform to which the DISPLAY can be set (either by Rational Rhapsody or any application executer on the server). This can be another Linux machine or a Windows machine that uses software such as Exceed or XVision.

It is possible to run multiple Rational Rhapsody sessions on a single machine, but the exact number (and therefore the number of servers that must be allocated) must be determined using a benchmark that focuses on the specific usage planned for the machine (build server versus Rational Rhapsody server) and the usage of the program itself (modeling, build machine, animation, and so on).

To enable a user to use animation, a designated port (other than the default port) must be specified for each user, both in the rhapsody.exe.ini file and in the generated code.

Note

Users might not be able to stop the execution of the make process from within Rational Rhapsody (via **Code > Build**) when there are multiple simultaneous builds. In such cases, you must stop the make process from outside of the program.

Installing Rational Rhapsody Architect for Software

To install Rational Rhapsody Architect for Software on a Windows system:

1. In the Rational Rhapsody installation directory, click the `.msi` file to start the installation.
2. The installation program starts and displays a window welcoming you to the installation wizard. The wizard guides you through the installation process. Click **Next** to continue the installation.
3. Select **Rational Rhapsody Architect for Software** and click **Next** to continue.
4. Select the directory for the program installation and click **Next.**
5. Select one of the three supported languages (C, C++, or Java) as the preferred language for your work and click **Next**.
6. If you selected C or C++ as your preferred language, select any of the Add On Installation options that you need for your environment. If you selected Java, instead of the Add On Installation options, you select the Java version you are using. Click **Next**.

   Note: The **Rational System Architect Interface** add-on option allows Rational System Architect software customers to import DoDAF (non-ABM) for use in a Rational Rhapsody project. The Importer Add On to Rational Rhapsody requires a special license.
7. Select the **Typical** or **Custom** installation as the Setup Type and click **Next**.
8. Select the source of your license. Click **Next** to continue.
9. On the next window, review the installation description and click **Install**.
10. Click **Finish** to complete the installation.

Installing Rational Rhapsody Architect for Systems Engineers

To install Rational Rhapsody Architect for Systems Engineers on a Windows system:

1. In the Rational Rhapsody installation directory, click the `.msi` file to start the installation.
2. The installation program starts and displays a window welcoming you to the installation wizard. The wizard guides you through the installation process. Click **Next** to continue the installation.
3. Select **Rational Rhapsody Architect for Systems Engineers edition** and click **Next** to continue.
4. Select the directory for the program installation and click **Next.**

   Note: There is no development language selection for the Rational Rhapsody Architect for Systems Engineers.
5. Select any of the available Add On Installation options (as shown in the example below) and click **Next.**

   Note: The **Rational System Architect Interface** add-on option allows Rational System Architect software customers to import DoDAF (non-ABM) for use in a Rational Rhapsody project. The Importer Add On to Rational Rhapsody requires a special license.
6. Select the **Typical** or **Custom** installation as the Setup Type and click **Next**.
7. Select the source of your license. Click **Next** to continue.
8. In the next window, review the installation description and click **Install**.
9. Click **Finish** to complete the installation.

Installing Rational Rhapsody Designer for Systems Engineers

To install Rational Rhapsody Designer for Systems Engineers on a Windows system:

1. In the Rational Rhapsody installation directory, click the `.msi` file to start the installation.
2. The installation program starts and displays a window welcoming you to the installation wizard. The wizard guides you through the installation process. Click **Next** to continue the installation.
3. Select **Rational Rhapsody Designer for Systems Engineers** and click **Next** to continue.
4. Select the directory for the program installation and click **Next.**
5. The basic Designer for Systems Engineers options for your environment are selected when the window displays. You may change the settings that are available. Click **Next** to continue.

   Note: The **Rational System Architect Interface** add-on option allows System Architect software customers to import DoDAF (non-ABM) for use in a Rational Rhapsody project. The Importer add-on to Rational Rhapsody requires a special license.
6. Select the **Typical** installation as the Setup Type and click **Next**.
7. Examine the description of your Designer for Systems Engineers installation in Ready to Install the Program window. If the information is correct, click **Install** to launch the installation as defined.
8. Select the source of your license. Click **Next** to continue.
9. In the next window review the installation description and click **Install**.
10. Click **Finish** to complete the installation.

Silent software installation

If you want to install Rational Rhapsody on a Windows system as a background operation or silent installation, you must create a customized script to set the installation variables for your computer environment.

The customized script starts the Rational Rhapsody `.msi` program and automatically selects your specified environment variables for each installation.

Note

In addition to the variable settings for the installation directory and system components, your script must set the `LAPAGREE` property to "`Yes`" to accept the IBM Rational software license agreement automatically. If it is not set to "Yes," the installation stops when it reaches this property.

For more information, see the IBM Rational support information describing the silent installation of the `msiexec.exe`.

Modifying, repairing, or removing Rational Rhapsody

If the installation wizard detects a version of Rational Rhapsody on the system, it displays the **Modify, Repair, or Remove** window. If you want to add the same version of Rational Rhapsody, select the **Repair** option because it adds all of the files that were added in the initial Rational Rhapsody installation process. However, if you are adding a new version of Rational Rhapsody, select **Remove** and follow the prompts by clicking **Next**. If you want to put add-ons or supported real-time environments on your system after the initial install, select **Modify** and click **Next**.

1. The Add On Installation window appears. Select or clear the check boxes of the components you want to add to your existing Rational Rhapsody installation. Click **Next**.
2. Review the installation description in **Ready to Install the Program** window and click **Install**.
3. Follow the instructions to complete the installation of the new add-ons or real-time environments. Click **Finish** when the installation is completed.

Note: If you want to add a different compiler, you must follow the procedure in **Upgrading to a later version** and then run the Rational Rhapsody installation with the new compiler.

Troubleshooting the installation

If the installation failed, you should review the common installation problems (listed below) for help. If the problem cannot be solved easily, contact the IBM customer support team.

The following are common causes of Rational Rhapsody installation problems:

- Failure to perform the prerequisite steps, as described in **Installation preparation**, and particularly failing to add the compiler before installing Rational Rhapsody is the most common problem. If you are adding the Cygwin compiler, use the instructions in **Cygwin installation**.
- During the installation you were unable to locate an add-on product that was purchased with Rational Rhapsody. The software license provided at the time of product delivery contains licensing for all add-on Rational Rhapsody products purchased with Rational Rhapsody. If an add-on product is not listed in the Add-on products selection window, contact your Rational Rhapsody representative to correct this problem.

Third-party tools

This section describes the required and optional third-party tools and important points to consider when using those tools with Rational Rhapsody.

Using Java and Rational Rhapsody

Rational Rhapsody Developer for Java requires J2SE SDK to compile and run the generated Java code using the default settings. This software is freely available from the JavaSoft Web site. See the Rational Rhapsody release notes (`readme.htm`) for the supported versions of J2SE SDK.

After installation, verify that your `PATH` environment variable is set to include the `bin` directory of the SDK. For example, if the SDK is installed in `D:\jdk1.5`, your `PATH` should include a reference to `D:\jdk1.5\bin`.

Manually installing the Visual Studio Add-on

To install the Visual Studio 2008 Workflow Integration after you installed Rational Rhapsody:

1. Launch Visual Studio 2008 and select **Tools > Options**.
2. From the Options window, select the **Add-in/Macros Security** environment and click **Add**.
3. Select the Rational Rhapsody Add-in File Path from the list and click **OK**.
4. Restart Visual Studio.

Note: If you no longer want to use Rational Rhapsody with Visual Studio, remove the Rational Rhapsody Add-in file path from Visual Studio and restart Visual Studio.

Setting up the UGS Teamcenter

During the Rational Rhapsody installation, the software installs a connector for the UGS Teamcenter Systems Engineering. (See to the Rational Rhapsody `readme.htm` for information about the appropriate Teamcenter version for this Rational Rhapsody version.) The Teamcenter software can be installed before or after the Rational Rhapsody installation. However, to connect Rational Rhapsody to the Teamcenter, the system administrator must take these additional steps:

1. Open the Teamcenter.
2. Click the **Administration** icon.
3. Create a Teamcenter Project for the developers to use for all of their Rational Rhapsody models.
4. For this project, select **Import** > **Import Schema**.
5. Locate the `Rhapsody\Addon\TcSE\`(server).
6. Select the `Rhp_Integration_Schema.xml` file to import the schema needed for Rational Rhapsody models.

Now this project is ready to be used with Rational Rhapsody.

Using CORBA with Rational Rhapsody Developer for C++

Rational Rhapsody Developer for C++ supports CORBA™ using the following software:

- An ORB (TAO)
- An IDL compiler
- CORBA header files
- ORB Libraries for CORBA

Note

CORBA is supported in Windows and C++ only; therefore, you must have a supported Windows C++ compiler running on the development machine. When you run the Rational Rhapsody installation, you must select the C++ compiler on your computer so that the CORBA features can be used.

Using configuration management with Rational Rhapsody

Use any of the following configuration management systems with Rational Rhapsody:

- IBM® Rational® ClearCase®
- IBM® Rational® Synergy®
- Serena® PVCS ® Dimensions® in SCC mode
- Rational Rhapsody also provides a generic SCC interface to Windows configuration management tools and other tools that use the SCC interface

Follow the instructions supplied with the configuration management software to put the tool on your computer.

As an SCC-compliant IDE, Rational Rhapsody can communicate with any CM tool that conforms to the SCC standard. To activate the generic SCC interface in Rational Rhapsody:

1. Select project in the browser.
2. Open the Rational Rhapsody project.
3. Display the Features window and select the Properties tab.
4. Locate the `ConfigurationManagement::General::UseSccTool` property and set the value to be `True`.

Eclipse and Rational Rhapsody Configuration

The Rational Rhapsody plug-in for Eclipse requires some additional setup steps. The following information should be considered when installing Eclipse and Rational Rhapsody:

- Either Rational Rhapsody or Eclipse can be installed first, but it is preferable to have the development environment installed before installing Rational Rhapsody.
- The Platform Integration with Eclipse can be used for C, C++, or Java application development on Rational Rhapsody models. See the **Eclipse and CDT for C or C++ application development** instructions for the download instructions.

Linking Rational Rhapsody to Eclipse

After all of the software has been installed, use Eclipse facilities to link Rational Rhapsody functionality into the Eclipse IDE:

1. Open Eclipse and select **Help > Software Updates**.
2. Click the **Available Software** tab and click **Add Site**.
3. In the Add Site window, click **Local** to display the directories on your computer.
4. Navigate to the Rational Rhapsody installation path and highlight the Eclipse folder. Click **OK**.
5. Expand the list of Rational Rhapsody and Eclipse selections in the **Available Software** tab.
6. Select only one of the Rational Rhapsody plug-ins for Eclipse:
   - **Rhapsody Platform Integration** permits developers to work on a Rational Rhapsody project completely within Eclipse. Rational Rhapsody does not need to be open for this implementation. This integration can be used for C, C++, or Java application development in a Windows environment only.
   - **Rhapsody Workflow Integration** allows the software developer to work in Rational Rhapsody and use some Eclipse features through Rational Rhapsody menu options. This integration can be used for C and C++ development in either Windows or Linux environments. Both Eclipse and Rational Rhapsody must be open when the developer is using this integration.
7. Select the integration type you want to use and click **Install**.
   If you select an integration that includes “Workbench” in the option, you intend to use the Wind River version of Eclipse.

   Note: Only one Eclipse release version should be installed on your computer. To load another version later, you must first remove the current Eclipse version and then run the installation for the different Eclipse version.

8. The program displays a window indicating that it is “resolving dependencies” and then displays the license for the selected plug-in. Examine the license, click the “I accept the terms of the license agreement” option, and click **Finish.**

9. When the installation has finished, restart your computer.

Checking the Eclipse Configuration

To check whether Rational Rhapsody is connected to your installation of Eclipse:

1. Open Eclipse.

2. Select **Help > About Eclipse SDK**. The Rational Rhapsody icon must be displayed on the window.

If the icon is not displayed, check the installations of the necessary software packages to be certain they are all functioning.

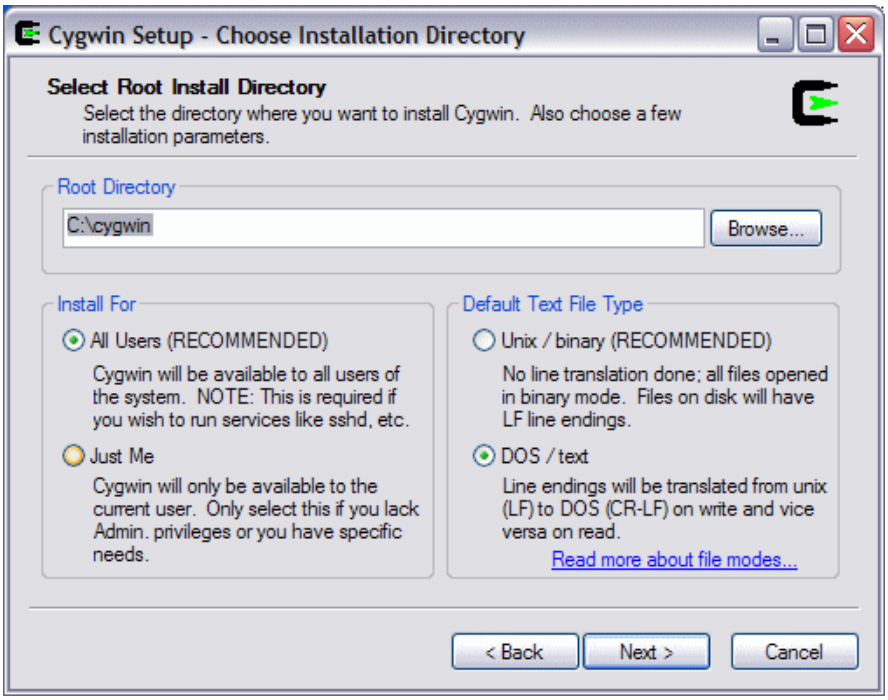
Cygwin installation

If you are going to use the Cygwin™ compiler, run the installation for Cygwin version 3.81 (make-version) or greater. The following instructions describe that version of this third-party software from **http://www.cygwin.com** using the setup.exe on their site, so you might see changes in the installation that are not described in the Rational Rhapsody instructions.

Installing the compiler

To run the installation for the Cygwin compiler:

1. Launch your Internet browser and navigate to Cygwin Web site.
2. Click the **Install Cygwin Now** icon.
3. Click **Next**.
4. Select the option to **Install from Internet** and click **Next**.
5. In the next window, type the name of the directory where the Cygwin program is to be installed, as shown in the following example.



6. In the “Install For” area, select **All Users (RECOMMENDED)**.

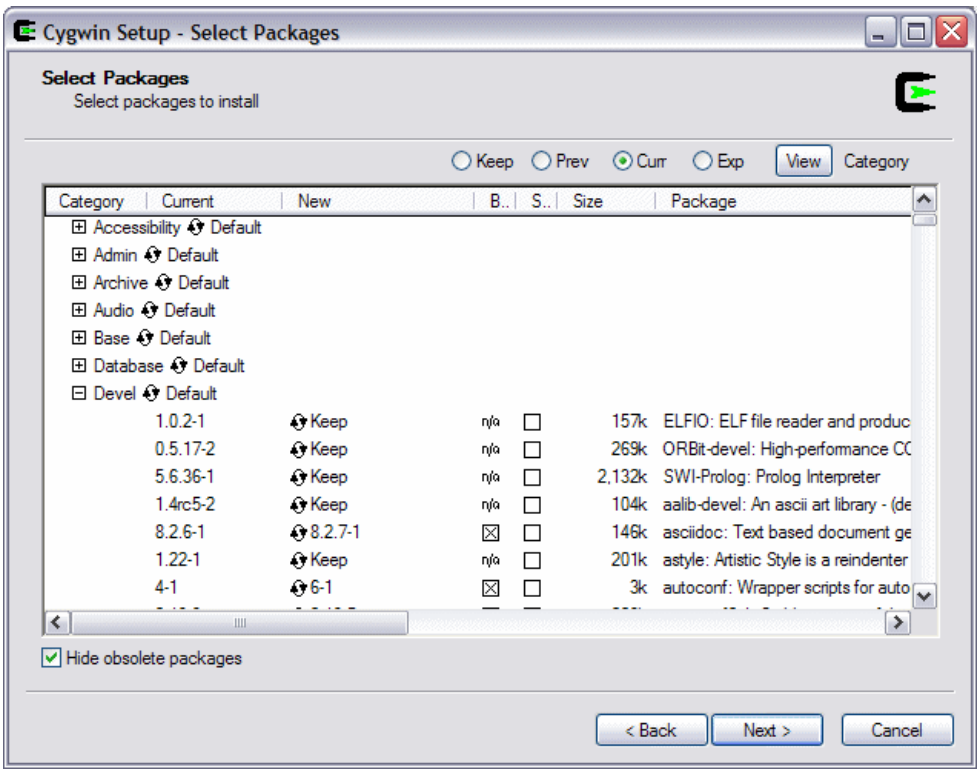
7. In the “Default Text File Type” area, select **DOS / text** and click **Next**.

8. In the **Select Local Package Directory** window, browse and select or type the name of the directory where you want to store the Cygwin installation files. Click **Next**.

9. Select **Direct Connection** if you are on a land area network (LAN), or enter the settings appropriate to your location. Click **Next**.

10. Select the download site closest to you geographically, or type in a URL for a site that your company has set up. Click **Next**.

11. The **Select Packages** window lists categories, each containing a specific group of packages to install. Expand the category *Devel*.



12. In the Devel row, click the icon until the word “Install” appears to the right of the icon. The specific packages to be put on the computer are displayed beneath the Devel row.

13. Click **Next**. The download and installation of the packages begin.

When the installation is complete, the **Create Icons** window is displayed. Use that window to place a Cygwin icon on your desktop or Start menu.

Checking your Cygwin installation

To test your Cygwin installation, open a DOS prompt and type the three command listed below. Press **Enter** after each command.

```
g++
gcc
path
```

The response to the first two commands should be “No Input files.” The third command should list the cygwin\bin in the system path. If you do not receive the cygwin\bin path in the PATH, specify it via the environment variables using the right-click **My Computer > Properties** option.

Rational Rhapsody and Citrix presentation server

When using Citrix with Rational Rhapsody, the software needs to run in a virtual environment on the Citrix Presentation Server. In addition to the standard Citrix installation instructions, you need to coordinate the installation of all of the software packages in the order listed in **Installing Citrix with other software packages**.

Installing Citrix with other software packages

The following steps are the general steps required to run the installation for the Citrix Presentation Server to run Rational Rhapsody in a virtual environment:

1. Run the Microsoft Windows Server installation.
2. Set operating system and drive subsystems configurations.
3. Run the required driver installations.
4. Run the Citrix Presentation Server Standard and Enterprise installations.
5. Run the installation for the dedicated Data Store in a SQL data structure.
6. Run latest Service Packs and Hotfixes installations.
7. Configure server further.
8. Run the Microsoft Visual Studio installation.
9. Change the terminal server to installation mode.
10. Run the Rational Rhapsody installation according to the **Installing Rational Rhapsody for Windows** instructions.
11. Create a Citrix Application Set and publish Rational Rhapsody on it.
12. Configure application security parameters.
13. Configure User policies and profiles so that users can start a Rational Rhapsody instance via the Citrix Client. They need Read and Execute access to the folder of the Rational Rhapsody executable file and Read and Write access to the server folders that contain the project or their workspace.
14. Set NTFS directory permissions.
15. Run the MetaFrame Presentation Server Client installation on a separate machine in the network and test.

Rhapsody.ini files

The first time a user runs Rational Rhapsody via the Citrix client, the terminal server copies all of the INI files from the Terminal Server Windows directory to the user's Windows directory. These files can be found in the server Documents and Settings directory.

Standard processing when .ini files change on the server

After that, for any `.ini` files in the server Windows directory that are changed when the terminal server is in installation mode, this processing occurs:

- When a user logs in again, the file extension of the old `.ini` files in the user's Windows directory is changed to have the `.ctx` extension.
- The newer `.ini` files on the system Windows directory are copied to the user's Windows directory.

For each user, Rational Rhapsody uses the `rhapsody.ini` file that is on the user's personal Windows directory.

Moving the rhapsody.ini file for remote users' access

When Rational Rhapsody is installed on Citrix it puts the `rhapsody.ini` file into the Rhapsody installation directory. In this environment, remote desktop users cannot receive the required settings when they start Rational Rhapsody.

To move the `rhapsody.ini` file for access to remote users:

1. From the command prompt, run the command:

   ```
   change user /install
   ```

2. Install Rational Rhapsody.
3. Move (not copy) the `rhapsody.ini` file from the installation directory to the Windows directory (C:\windows) on the system.
4. From the command prompt, run the command:

   ```
   change user /execute
   ```

Using Citrix with multiple Rational Rhapsody instances

By default, Rational Rhapsody uses one TCP/IP port for animation. If a second instance of Rational Rhapsody is launched on the same machine, it generates a "cannot create socket" warning message. If several users want to run Rational Rhapsody on a Citrix server, additional manual settings are needed to establish the connection between Rational Rhapsody and the animation application through a TCP/IP port and enable this type of configuration.

Rational Rhapsody with Windows application server

Users without administrator privileges might have a separate `rhapsody.ini` file for each version of Rational Rhapsody on a computer with a Windows operating system.

Running Rational Rhapsody

Rational Rhapsody runs in Windows and Linux environments. Follow the instructions in this section to start and run Rational Rhapsody editions in those environments.

Starting Rational Rhapsody

Once you have installed the Rational Rhapsody software and all the licenses, you are ready to run Rational Rhapsody. This section describes how to start Rational Rhapsody on Windows systems and Linux systems.

Running on Windows systems

For node locked license installations on Windows systems, start Rational Rhapsody by selecting **Start > All Programs > IBM Rational > IBM Rational Rhapsody** (version) **> Rational Rhapsody Developer edition > Rational Rhapsody Developer for** (language).

Running on Linux systems

To start Rational Rhapsody product in Linux from the terminal, browse to the Rational Rhapsody home directory and execute the Rational Rhapsody script for the language you are using. Here is an example of the script to launch Rational Rhapsody for C++:

```
[Rhapsody installation location]# cd /home/Rhapsody
[Rhapsody installation location]# ./RhapsodyInCpp
```

In this command, replace [`Rhapsody installation location`] with the Rational Rhapsody installation directory. Then select the launch script for one of these languages available on Linux systems:

- C++
- C
- Java

Running different editions of Rational Rhapsody

This section describes how to switch between different editions of Rational Rhapsody on the same client Windows system. You can run different editions of Rational Rhapsody (that is, Designer for Systems Engineers, Architect for Systems Engineers, and Architect for Software) with a separate `rhapsody.ini` file (stored in the installation directory) for each edition you have licensed and want to use on the same computer. You do not need administrator privileges to set up different editions on the computer.

To run one or more of the different editions with the Rational Rhapsody Developer:

1. Install Rational Rhapsody Developer.
2. Go to the All Users profile, then to Start\All Programs\IBM Rational\IBM Rational Rhapsody (version). For example:

   ```
   C:\Win\Profiles\All Users\Start Menu\Programs\IBM Rational\IBM Rational Rhapsody 7.5
   ```

   This directory contains links for the different languages, depending on your installation. The possible values are as follows:

   - Ada
   - C
   - C++
   - Java
3. Copy the Rational Rhapsody Developer edition folder and rename the copied folder to the edition you want, such as `Rhapsody Designer for Systems Engineers edition`.
4. Navigate to the newly renamed folder.
5. Right-click the Rational Rhapsody for C++ link and select **Properties**.
6. Replace the -dev_ed switch with -`system_designer -lang=cpp`, in order for Rational Rhapsody Designer for Systems Engineers in C++ to be used and select a Designer for Systems Engineers license. The other edition switches are as follows:

   `-dev_ed` is Rational Rhapsody Developer edition.

   `-system_architect` is Rational Rhapsody Architect for Systems Engineers edition.

   `-architect` is Rational Rhapsody Architect for Software.

   The `-lang=` parameter can be `ada`, `c`, `cpp`, or `java`.

Upgrading to a later version

If you have an older version of Rational Rhapsody and want to upgrade to the most recent release, follow the instructions in this section to perform the basic upgrade setup process for your environment. For more detailed information, you should also see the following documents:

- *ReadMe* (release notes) are included in the Rational Rhapsody product download in the `readme.htm` file (contains "What's New" in this release and specific hardware and software requirements, as well as any limitations)
- *Fixed Defects List* of the corrected customer-reported defects included in this product release
- *Upgrade Guide* for any functionality changes introduced in the most recent release and the previous releases that are currently being used

Upgrade process

No matter what platform you are using for your Rational Rhapsody installation, you must follow these general steps to upgrade to a new release of the software:

1. Remove the old version of Rational Rhapsody from your system environment by following the appropriate procedure in this section.
2. Restart your system before installing the new version.
3. Run the installation for the new version by following the installation instructions in this guide.
4. If you have your own operating system adapter, rebuild your framework libraries in the new version.
5. Regenerate and rebuild the code for any applications created using the previous version.

Removing Rational Rhapsody from a Windows system

There are two methods to remove an older version of Rational Rhapsody from a Windows system:

- Launch the installation program and select the **Remove** option, as described in **Modifying, repairing, or removing Rational Rhapsody**.
- Use the Windows Add and Remove feature, as described below.

To use the Windows Control Panel to remove the Rational Rhapsody software:

1. Select Windows **Start** and **Control Panel**.
2. Select the **Add and Remove Programs** operation from the Windows Control Panel.
3. From the list of programs displayed, select your current version of Rational Rhapsody.
4. Click the **Remove** button that displays.

A Change/Remove window displays with a message indicating that it is “gathering required information.” When the process is finished, the Rational Rhapsody item is removed from the Add or Remove Programs window. You should restart the computer before installing the new version of Rational Rhapsody.

Deleting Rational Rhapsody from a Linux platform

Determine how to deploy the new version of Rational Rhapsody on your Linux platform. Will it be the same structure as the older version or a different design?

There is no Rational Rhapsody uninstall wizard for Linux systems. You must have administrator rights to follow these steps:

1. To delete the current Rhapsody directory structure from your Linux platform, use your operating system tools to delete the current Rational Rhapsody directory structure from your Linux platform.

   Note: Be certain to delete the client and server directories, as well as the application server version if that was part of your previous deployment structure.

2. Reboot the system.
3. Follow the instructions in **Installing on Linux systems** to upgrade to the new Rational Rhapsody version.

Upgrading the Rational Rhapsody plug-in for the Eclipse

If you are using the Rational Rhapsody plug-in for Eclipse and want to upgrade your version of Rational Rhapsody:

1. Remove your current version of Rational Rhapsody, as described in **Removing Rational Rhapsody from a Windows system**.
2. Remove your version of Eclipse.
3. Run the Rational Rhapsody installation according to the **Installing Rational Rhapsody for Windows** instructions.
4. Run the Eclipse and CDT installations again according to the **Eclipse and CDT for C or C++ application development** instructions.
5. Reconnect the Rational Rhapsody plug-in to Eclipse as described in **Linking Rational Rhapsody to Eclipse**.

Upgrade restrictions

These restrictions apply to the following upgrade conditions:

- The Rational Rhapsody Gateway and Rational Rhapsody versions are coordinated for a specific installation. Therefore, an older version of Rational Rhapsody Gateway is not supported in an upgraded version of Rational Rhapsody. See the Rational Rhapsody release notes (`readme.htm`) for lists of supported software versions.
- You cannot run an earlier version of Rational Rhapsody with a newer version. For example, if you installed Rational Rhapsody 7.4, you must remove that version before you install Rational Rhapsody 7.4.1.

Troubleshooting a Windows upgrade

The most common cause of an upgrade problem is failure to remove the previous version of Rational Rhapsody before starting the new installation. The Windows installation wizard checks to be certain that the previous version has been removed. Follow the instructions for your type of system:

- **Removing Rational Rhapsody from a Windows system**
- **Deleting Rational Rhapsody from a Linux platform**

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