Release Notes & Installation Guide Rational Rose RealTime Professional

IMPORTANT NOTICE

PATENT

Portions covered by U.S. Patent Nos.5,193,180 and 5,335,334 and 5,535,329 and 5,835,701 and 5,574,898 and 5,649,200 and 5,675,802.

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Chapter 1

Introduction

Thank you for selecting Rational Rose RealTime, the real-time industry's leading environment for designing and building real-time applications.

The Rational Rose RealTime Professional Package you have purchased extends Rational Rose RealTime to provide support for many embedded targets. If you do not have the installation key, please contact License Support for assistance. See "Technical Support" on page 47.

In this guide:

- "What's New" on page 2
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Please read this guide, along with the Release Notes for the base product, before you install or use the Rational Rose RealTime Professional Package.

Note: *In some cases, you may note discrepancies between the printed documentation and the online documentation. In these cases, the online documentation is the most up-to-date and should be followed.*

Please visit the Rational Web site for the latest Release Notes, patches and information:

http://www.rational.com/support/

If you encounter any problems while installing or running Rational Rose RealTime, please check here first to see if you have encountered a known problem. If you find a problem that is not yet documented, please call Rational Technical Support so we can investigate it, provide you with a workaround, and track the problem for further action.

See "Technical Support" on page 47 for telephone numbers and e-mail addresses of the Rational Support representatives for your region.

What's New

These are the new features included in this release of Rational Rose RealTime!

- Support for Automated Testing
  - ❑ Rational Quality Architect - RealTime
- Support for Additional platforms and languages
  - ❑ now includes Java language support
  - ❑ new host support
    - – Solaris 2.8
  - ❑ new target support
    - – Windows CE on SH3 CPU
- Team Development Improvements
  - ❑ Model Integrator improvements
  - ❑ enhanced model sharing with shared interface packages
- Usability Improvements
  - ❑ improved start-up with a customizable frameworks wizard
  - ❑ runs in English, supports non-English data on German, French, Italian, Swedish, and Japanese operating systems

Rational Quality Architect - RealTime Edition (RQA-RT)

With RQA-RT, you can use sequence diagrams to test the intergrity of a system. You can also test in isolation by isolating capsules. Use RQA-RT to facilitate unit testing and scenario testing.

Rational Connexis

Support for new ports

Support has been added for the following operating systems:

- Host and Target Support for HP-UX 10.20
- Redhat Linux
- LinuxWorks (x86)
- Unixware
- Windows CE (sh3)

   Note: *Table 2, "Supported platforms and targets," on page 12, provides detailed information about the new Rational Connexis ports.*

Reduced DCS footprint

Updates have been made to the DCS that have reduced the static footprint of the DCS libraries by approximately 15 %.

Sequence diagrams from circuit traces

Collaboration diagrams and sequence diagrams are useful for representing interactions between objects. The Connexis Viewer provides the capability to capture interactions between ports that have been bound using the DCS. This release introduces the capability to import these interactions from a file and render them into collaboration and sequence diagrams in a Rational Rose RealTime model.

PLEASE READ FIRST

You must install Rose RealTime before installing the Rational Rose RealTime Professional Package. Directory structures established during the installation of Rational Rose RealTime are required during the installation of the Rational Rose RealTime Professional Package.

Please review the Rational Rose RealTime Installation Guide and the Rational Rose RealTime Release Notes for information on installing the base product.

Notice to Rational Beta Customers

IF YOU WERE A BETA CUSTOMER FOR RATIONAL ROSE REALTIME, PLEASE UNINSTALL BOTH THE WINDOWS, UNIX, AND COMPANION CD COMPONENTS OF THE BETA VERSION FROM YOUR SYSTEM BEFORE BEGINNING YOUR INSTALLATION.

Chapter 2

Overview of the Professional Packages

The Release Notes and Installation Guide for Rational Rose RealTime Professional applies to the Rational Rose RealTime Professional package and the Rose RealTime Professional Porting package.

The Rational Rose RealTime Professional Package

In addition to Rose RealTime, the Rose RealTime Professional package includes the following software:

■ Rational Connexis

■ Rational Quality Architect- RealTime Edition

■ Rational Target Deployment Package

Rational Connexis

Connexis simplifies the construction of reliable, distributed applications using Rational Rose RealTime. You can easily establish communication paths and send messages between capsules in separate processes whether they reside on the same node or on separate nodes. Also, you can monitor connections, trace messages, and collect communication metrics.

With Rational Connexis, you can distribute applications built with Rational Rose RealTime™ version 2001A.04.00. Connexis also provides features to help you build reliable distributed applications.

Connexis extends the asynchronous messaging used between capsules in Rational Rose RealTime so that it can be used between capsules located in different processes or different nodes in a network. Connexis allows you to use unwired ports, based on protocols you define, to establish these connections. Since the same mechanisms are used for local and remote messaging, it is easy to make your application distributed.

Using a publish and subscribe pattern, Connexis can connect capsules whether they are on the same processor, distributed on a backplane, across a network connection, or through some other channel. To implement these connections, Connexis uses the underlying TCP/IP stack of the operating system.

Connexis also includes several features to provide fault-tolerance capabilities to the applications you build with Rose RealTime. The Connexis Locator Service, which can be used to find connection destinations, supports the use of a backup locator to automatically take over should the primary locator fail.

Run-Time connectivity viewing

Determining connectivity in a distributed system can be tedious and time-consuming. To make this easier, Connexis includes a connectivity trace tool, the Connexis Viewer, that lets you examine and monitor connection status in real-time. You can easily determine the services that have been published and who has subscribed to them, wherever the publishers and subscribers may be on your network.

The Connexis Viewer also lets you trace messages between publishers and subscribers. You can apply filters to restrict the trace information being captured and you can also specify the number and size of the memory buffers allocated for tracing. This allows you to carefully control the allocation and use of tracing resources on target.

Together, these features provide easy, convenient, and fault-tolerant connectivity. Instead of building your own distributed communications infrastructure, you can build additional revenue-generating features into your product. The result is that your product ships sooner with more features.

Please refer to the "*Rational Connexis User Guide"* for a complete description of the Connexis product.

Rational Quality Architect - RealTime Edition

Rational Quality Architect--RealTime Edition, new with this release, automates scenario-based unit testing. You can create sequence diagrams that specify how any set of capsules interact. With a single command, Rational Quality Architect generates and builds test harnesses along with any requested stubs, runs the tests on the specified target, collects the results at run-time, compares those results with the original sequence diagrams, and highlights any differences between them along with any detected race conditions.

Using Rational Quality Architect - RealTime Edition (RQA-RT), you can extend Rational Rose RealTime's design automation capabilities to model, debug and test. By automatically generating complete unit and integration test harnesses directly from sequence diagram specifications, manual coding of stubs and drivers for debugging and testing is eliminated.

RQA-RT automatically verifies designs against sequence diagram specifications both analytically and during execution. Application generation and automatic testing of fully or partially complete designs, plus animated visual and symbolic debuggers, encourages early and continuous design refinement and validation.

For detailed information on RQA-RT, see the *Rational Quality Architect - RealTime Edition (RQA-RT) User Guid*e.

Allow sub-capsule instances to be drivers

This functionality provides a way to implement "stub" generation for contained capsule instances. By providing this functionality RQA-RT enables more robust testing and more complex interactions.

Verification mode changes to allow more control in manual mode

This functionality enables RQA-RT to operate in manual mode and provides the functionality to run the harness on a custom node.

Allow data qualifier in data field of send message

This functionality enables full composite data types to be passed as the signal data, allowing the same range of data flexibility or inject capability as in the toolset.

Allow drivers to model timing services

When a timing service is invoked from the driver interaction instance, it will be generated into the driver capsule. This provides more robust support for converting trace diagrams into specifications.

Capsule interface generation for instances on sequence diagram without role specified

Required test wrappers are automatically generated based on the user supplied sequence diagrams.

Java language support

Enables RQA-RT functionality on a model based on the Java Language add-in.

Rational Rose RealTime Target Deployment Package

The Target Deployment Package includes the source code for the UML Services Libraries. These libraries provide Rose RealTime generated applications with a platform-independent set of services such as communication, timing, capsule lifecycle management, and state machine execution. The UML Services Libraries also include an adaptation layer that maps the platform-independent services to the specific services provided by the target platform. The Target Deployment Package includes adaptations for many popular targets.

Rational Rose RealTime Target Deployment Package provides you with one or more embedded targets for integration with your Rational Rose RealTime toolset.

After you have installed the Rational Rose RealTime Professional Package, with the install key included with the Professional Package shipment, you have support for the base Target Deployment Package embedded targets as identified above.

Rational Rose RealTime Target Porting Package

The Rose RealTime Professional Porting package includes the same software as the Rose RealTime Professional package, except that it includes the Target Porting Package instead of the Target Deployment Package. The Target Porting Package, like the Target Deployment Package, includes the source code for the UML Services Libraries. However, the Target Porting Package does not include any adaptations for any targets other than the host platforms on which the Rose RealTime toolset runs.

The porting package provides you with the tools necessary to develop or deploy for a custom embedded target environment. Included with this package are the porting guides for both the C and C++ languages along with example ports for each of these environments.

After you have installed the Rational Rose RealTime Professional Package, the porting guides will be included in the online help and PDF versions are located in the directory %ROSERT_HOME%\help on Windows or $ROSERT_HOME/help on UNIX:

- cpp_portingguide.pdf
- c_portingguide.pdf

Please refer to the appropriate porting guide for information on where the various components of the example ports can be found.

As you are planning to develop and deploy on a target line-up which is not a formally supported platform, see the supported platforms section of the Installation Guide, Rational Rose RealTime. Please note that product support will be based on the closest reference platform as identified in the supported platforms section.

Chapter 3

Supported Platforms

Supported Platforms for Rational Rose RealTime

Table 1 shows the supported host platforms for this release of Rational Rose RealTime.

Note: *Rational Rose RealTime is not supported on Windows 95.*

Table 1   Host Platforms

Toolset Host
Solaris 2.6
Solaris 2.7
Solaris 2.8
Windows NT 4.0
Windows 2000
HPUX 10.20

Note: *Java generation on HPUX is not supported.*

A pre-defined set of the Rose RealTime UML Services Libraries are delivered as part of the Rational Rose RealTime product. The UML Services Library is what allows standalone executable models to be executed on target operating systems. These ports are fully tested by Rational, and are covered by standard Rational support. A standard port can be used to facilitate a port to your environment of choice.

Note: For a more detailed description of the Services Library, refer to the programmer's guide or online documentation or see the online documentation.

A port is based on the following specifics (often called the toolchain line-up):

■ OS version

■ Compiler version

■ Processor type

If you are using a line-up other than the one tested by Rational and listed in this guide, standard support covers problems that are reproducible on the line-up listed in this guide. Table 2 shows the supported platforms and targets.

Table 2   Supported platforms and targets

Host Platform(s)	Target RTOS	Compiler/Processor	RTS	DCS
Solaris	Same	Gnu 2.95.1, sparc	C++	C++
		Gnu 2.8.1, sparc	C & C++	C++
		Gnu 2.7.2.3, sparc	C++	-
		Sun C++ 5.0, sparc	C++	C++
		Sun C 5.0, sparc	C	-
HPUX	Same	Gnu 2.8.1, hppa	C & C++	C++
		HP C++ 10.11, hppa	C++	-
Windows	Same	Visual C++ 5.0. x86	C & C++	C+
		Visual C++ 6.0, x86	C & C++	+C++
Solaris	pSOS 2.5	Diab 4.2b, ppc	C++	C++
Solaris, HPUX	VRTX	Microtec 1.3C, ppc	C++	-
Windows	VRTX 4.Baa	Microtec 1.4, ppc	C++	-
Solaris, Windows	OSE 4.1.1	Diab 4.3f, ppc	C & C++	C++
		GreenHills 1.8.9, ppc	C	-
		GreenHills 2.0, ppc	C	-
Solaris	OSE 4.1.1 SoftKernel	Gnu 2.95.1, sparc	C & C++	-
Windows	OSE 4.1.1 SoftKernel	Visual C++ 6.0, x86	C	-

Table 2   Supported platforms and targets

Host Platform(s)	Target RTOS	Compiler/Processor	RTS	DCS
Solaris, Windows, HPUX	Tornado 1.0.1 (VxWorks 5.3.1)	Cygnus 2.7.2.960126, M68040,	C & C++	-
		Cygnus 2.7.2.960126, ppc,	C & C++	C++
		Cygnus 2.7.2.960126, x86	C & C++	-
Windows	Tornado 1.0.1	Cygnus 2.7.2.960126, I960	C++	-
Solaris, Windows, HPUX	Tornado 2.0(VxWorks 5.4)	Cygnus 2.7.2.960126, M68040	C & C++	-
		Cygnus 2.7.2.960126, ppc	C & C++	C++
		Cygnus 2.7.2.960126, x86	C & C++	-
		GreenHills 1.8.9, ppc	C & C++	C++
		GreenHills 2.0, ppc	C & C++	C++
Solaris	Tornado 2.0 Sim	Cygnus 2.7.2.960126, sparc	C++	C++
Windows	Tornado 2.0 Sim	egcs 2.90.29, x86	C++	C++
Solaris, Windows	LYNX 3.1.0a	gnupro-2.9-98r2, ppc	C++	C++
Solaris	LYNX 3.0.1	Cygnus 2.7.97r1, x86	C++	C++
		Cygnus 2.7.97r1, ppc	C++	C++
Solaris	Chorus Classix 4.0	egcs-2.91.66, ppc	C++	-
Windows	Windows CE sh3	eMbedded Visual C++ 3.0, sh3	C++	C++
Native compilation only	AIX 4.2.1	gnu 2.8.1	C++	-
Native compilation only	IRIX 6.	gnu 2.8.1	C++	-
Native compilation only	Nucleus 1.1	Diab 4.2b	C++	-
Native compilation only	Red Hat Linux 6.1	Egcs 2.91.66	C++	C++
Native compilation only	QNX 4.2.2	Watcom C++ 10.6	C++	-
Native compilation only	UnixWare 7.0.1	SDK 3.0	C++	C++

PSOS 2.5/PPC/Diab 4.2b DCS Port

The pSOS installation provides a board-support package (BSP) with settings that must be customized for running Connexis applications. Depending on the hardware parameters of your board, you must adjust the settings according to your requirements.

The following excerpt from the file sys_config.h in the BSP directory shows a sample set of configuration parameters. Pay special attention to the comments containing additional notes that are in brackets. For example, the comment: `max number of tasks (25 -> 35)`, for `KC_NTASK`, means that the maximum number of tasks has been increased to 35 for Connexis applications.

The following component configuration parameters work as they are for this application. Modify them to your requirements to customize the application.

```
/***********************************************************************/
/*                                                                     */
/* C O M P O N E N T    C O N F I G U R A T I O N    P A R A M E T E R S */
/*                                                                     */
/*  These parameters should work as is for this application. You */
/*  may want to change some of them if you start customizing this */
/*  application.                                                       */
/*                                                                     */
/***********************************************************************/
/*---------------------------------------------------------------------
*/
/* pSOS+ configuration parameters - change these for Connexis
applications.       */
/*---------------------------------------------------------------------
*/
#define KC_RN0USIZE    0x100    /* region 0 unit size
*/
#define KC_NTASK       35        /* max number of tasks (25 -> 35)
*/
#define KC_NQUEUE      15         /* max number of message queues (10 ->
15) */
#define KC_NSEMA4      60        /* max number of semaphores (30 -> 60)
*/
#define KC_NTIMER      15         /* max number of timers (10 -> 15)
*/
#define KC_NMUTEX      60        /* Max number of mutexes (30 -> 60)
*/
```

```
#define KC_NCVAR        10        /* Max number of condition variables (5-
>10)*/
#define KC_NTVAR        10        /* Max number of task variables (5 -> 10)
*/
#define KC_NCOCB       5        /* Max number of callouts
*/
#define KC_NTSD        5        /* Max # of Task Specific Data entries
*/
#define KC_NLOCOBJ      80        /* max number of local objects (50 -> 80)
*/
#define KC_NMSGBUF      384        /* max number of message buffers (256-
>384)*/
#define KC_TICKS2SEC   100       /* clock tick interrupt frequency
*/
#define KC_TICKS2SLICE 10        /* time slice quantum, in ticks
*/
#define KC_MAXDNTENT   0        /* max number of device names in DNT
*/
#define KC_DNLEN       10        /* max length of a device name in DNT
*/
#define KC_SYSSTK       0xA000   /* pSOS+ system stack size (bytes) (8->
A) */
#define KC_ROOTSSTK     0xA000   /* ROOT supervisor stack size (8 -> A)
*/
#define KC_IDLESTK      0x0500   /* IDLE stack size          (4 -> 5)
*/
#define KC_ROOTUSTK     0xA000   /* ROOT user stack size   (8 -> A)
*/
#define KC_ROOTMODE     (T_SUPV | T_ISR) /* ROOT initial mode
*/
#define KC_ROOTPRI      230       /* ROOT task priority
*/
#define KC_NIO          (SC_DEVMAX+1) /* # of devices in initial iojtab
*/
#define KC_MAXIO        (SC_DEVMAX+3) /* Max # of devices in the system
*/
```

> **Note:** *These settings differ depending on the target board characteristics (memory, etc.)*

Multi-node system support

The pSOS OS lets you configure multi-node systems. Each node has a unique ID number. During start-up, Connexis requires the node number on which the Connexis binary will run. For this purpose, the following command-line parameter informs the Connexis library about the node number:

-CNXpSOS_node = x

where x is an integer, specifying the node ID. If not specified, the default is 0 (zero) for single-node system.

Known problems

- At the time of this release, the number of user-created threads has an impact on system performance. Increasing the number of threads decreases system performance in a linear fashion.
- In this release of Connexis, the pSOS system does not support dynamic resolution of network addresses for a given IP address. Connexis end-points should be specified with explicit IP addresses.

Table 3 provides an example of a syntax that is supported and a syntax that is not supported by the DCS for pSOS.

Table 3

Supported	Not Supported
-CNXlpep=cdm://<IP address>:<port>	-CNXlpep=cdm://<CPU name>:<port>
example: CNXlpep=cdm://193.138.253.54:3100	*example:* -CNXlpep=cdm://sparc11:3100

TORNADO 2.0/SimSo/Cygnus 2.7.2-960126 DCS Port

This section describes the board-support package (BSP) and VxWorks kernel settings applied when testing the Tornado 2.0/simSo/Cygnus 2.7.2-960126 port.

The Tornado installations provide a standard VxWorks simulator with no networking capabilities. If you are using Connexis under the VxWorks simulator, install the full VxWorks simulator.

To configure the full Solaris simulator with networking:

1. Use the Create Project facility to create a bootable VxWorks image. On the VxWorks tab in the Project Workspace window, select the folder called network components. Right-click and select "Include network components" from the context menu. Uncheck BSD interface support and check PPP and PPP boot or ULIP and ULIP boot. Click **OK**.

2. If you are only using PPP, go to the obsolete components folder and include 5.2 serial drivers. Right-click the element to open the **Properties** window, click the **Params** tab, and confirm that **NUM_TTY** is set to 2.

3. On the VxWorks tab in the Project Workspace window, select the folder called 'select WDB connection' and check "WDB network connection." Then select the folder called 'select WDB mode' and uncheck 'WDB system debugging.'

4. Remove the BSD attach interface and BSD interface support components **(INCLUDE_BSD_BOOT and INCLUDE_BSD)** from the network devices subfolder. If you are using PPP, also remove ULIP and ULIP boot (**INLUDE_ULIP** and **INCLUDE_ULIP_BOOT**). See "Known problems" on page 18 for more information.

5. Ensure that #**undef INCLUDE_NETWORK** and #**undef INCLUDE_NET_INIT** are removed from **config.h** or that the "undef" parts are changed to "define."

6. If you want to use multiple simulators simultaneously, using ULIP on Solaris, add the following to the **config.h** of your BSP:

   #undef WDB_COMM_TYPE

   #define WDB_COMM_TYPE   WDB_COMM_NETWORK

7. If you are using PPP, define the following in **config.h**:
   #ifdef BSD43_COMPATIBLE
   #undef BSD43_COMPATIBLE
   #endif

8. Rebuild and download VxWorks.

   Note: *While downloading VxWorks, change your target server configuration from **wdbpipe** to **wdbrpc**.*

Known problems

- At the time of this release, end-points specifying the IP address (see Table 3) have been specified for Connexis binaries to establish connection, while running on top of the simulator.

- When downloading the VxWorks image, change the default value in the Memory size(bytes) field from 3000000 to 8000000 to ensure you have sufficient memory for your application.

- When connecting between two Solaris machines, configure the Solaris machines for IP forwarding.

  Note: If either of the two machines does not have IP forwarding turned on, the vxSim processes will not be able to talk to each other.

- Ensure that the routing tables are configured correctly for vxSim processes (if connecting two vxSim processes) and the Solaris machines (see "Example of routing tables" on page 18).

Example of routing tables

The following example illustrates how to configure routing tables. Assume that you have the following hosts:

```
147.11.50.5limpopo
127.0.1.1vxsim1 (running on limpopo)
147.11.50.3kaveri
127.0.1.9vxsim9 (running on kaveri)

You would then need to have the following routes:

(obtained by use of "netstat -rn"):

on limpopo:
    limpopo->vxsim1  127.0.1.1   127.0.1.254   UH   3   0   ipd0
    limpopo->vxsim9  127.0.1.9   147.11.50.3   UGH  0   3

on kaveri:
    kaveri->vxsim9   127.0.1.9   127.0.1.254   UH   3   0   ipd0
    limpopo->vxsim1  127.0.1.1   147.11.50.5   UGH  0   3

(obtained by use of "routeShow"):

on vxsim1:
   vxsim1->kaveri (network route)
    147.11.0.0       127.0.1.254     3      1      5      ppp0
```

```
    vxsim1->vxsim9 (host route)
    127.0.1.9          147.11.50.3      7        0          5        ppp0

on vxsim9:
    vxsim9->limpopo (network route)
    147.11.0.0         127.0.1.254      3        1          5        ppp0

    vxsim9->vxsim1 (host route)
    127.0.1.1          147.11.50.5      7        0          5        ppp0
```

Demonstrating the example

To demonstrate the routing table example, send a ping from vxsim1 to limpopo on the localhost address, from limpopo on 147.11.50.5 to kaveri, and from to vxsim9:

```
-> ping "127.0.0.1",1
127.0.0.1 is alive
value = 0 = 0x0
-> ping "147.11.50.5",1
147.11.50.5 is alive
value = 0 = 0x0
-> ping "147.11.50.3",1
147.11.50.3 is alive
value = 0 = 0x0
-> ping "127.0.1.9",1
127.0.1.9 is alive
value = 0 = 0x0
```

Note: *If you experience problems using VXsim on a host, communicating with another host, contact WindRiver technical support.*

Chapter 4

Installation

The Professional Edition installation key is provided in the Welcome Letter that you receive with the product shipment. Contact Rational License Support if you did not receive a Professional Edition installation key.

Note: *Rational Connexis version 2001A.04.00 has been tested with Rational Rose RealTime version 2001A.04.00 only. It will not work with earlier releases of Rational Rose RealTime.*

System requirements - Windows NT or 2000

To install Rational Rose RealTime Professional Edition, you must have

- Windows NT 4.0, Build 1381 with service pack 5 or 6a
  or
- Windows 2000 Professional
- Rational Rose RealTime version 2001A.04.00 installed and configured to build models on the desired targets
- 128 MB of RAM minimum (256 MB recommended)
- 325 MB of free disk space

System requirements - Solaris

To install Rational Rose RealTime Professional Edition, you must have

- Solaris 2.6, 2.7, or 2.8 or HP-UX 10.20
- Rational Rose RealTime version 2001A.04.00 installed and configured to build models on the desired targets
- 128 MB of RAM minimum (256 MB recommended)
- 250 MB of free disk space

Installing Rational Rose RealTime Professional Edition

When you install Rational Rose RealTime Professional Edition, you have the following options:

- Typical and network installation for Windows (NT and 2000)
  - ❑ Typical Installation - installs the RealTime Professional Edition on your local system (Requires that Rational Rose Realtime is currently installed on your local system).
  - ❑ Network Installation - installs the required components on your local system to run the Rose RealTime Professional Edition from a network location (Requires that the administrative installation of Rational Rose RealTime Professional Edition is complete).
- Administrative installation for Windows (NT and 2000)

  An administrative installation installs the files required to run Rose RealTime Professional from a location on the network.

You must complete an administrative installation before you perform a network installation of Rational Rose RealTime Professional Edition.

Typical and network installation for Windows (NT and 2000)

When you install Rational Rose RealTime Professional Edition, you can install the Profession Edition as a typical or a network type installation. A typical installation installs the Professional Edition on your local system, where Rose RealTime should already be installed. A network configures the client machine to run Rose RealTime Professional from a location on the network.

To install the Rational Rose RealTime Professional Edition for typical or network use, follow these steps:

1. Verify that the base Rational Rose RealTime product has been installed, version 2001A.04.00.

2. Insert the Rational Rose RealTime Companion Products CD into your CD-ROM drive.

   If the system is configured with the autorun feature enabled, the setup program will run automatically and you may continue with step 4.

3. Use Windows Explorer to open a window displaying the contents of the CD-ROM. For example, double-click "My Computer" and double-click the icon for the Rational Rose RealTime Companion Products CD. Double-click the **Setup.exe** icon to run Setup.

   Note: *The .exe file name extension may not be visible.*

   The Setup dialog box appears followed by the Welcome dialog box.

4. Click **Next** to view the License Agreement.

   You must accept the license agreement to proceed.

   If you do not agree with the terms of the license agreement, you should exit the installation. All software and documentation should be returned to Rational Software.

   If you accept the terms and conditions of the license agreement, click **Yes**.

   The Setup Type dialog appears.

5. Select **Typical** or **Network**, depending on your requirements.

> *Note:* *You must complete an administrative installation of Rose RealTime before performing a network installation (see "Administrative installation for Windows (NT and 2000)" on page 24).*

6. You are prompted to enter an installation key. Enter the key and click **Next**.

    Note: *The Professional Edition installation key is provided in the Welcome Letter that you have received with the product shipment. Contact Rational License Support if you did not receive a Professional Edition installation key.*

7. The products selected for installation are listed. Click **Next** to start the installation.

8. Click **Finish**.

Administrative installation for Windows (NT and 2000)

To successfully complete the administrative installation of Rose RealTime Professional Edition, an administrative installation of Rational Rose DevelopmentStudio RealTime Edition must be installed on the network (Refer to Rational Rose DevelopmentStudio RealTime Edition User Guide). During the administrative installation of Rose RealTime Professional Edition, the required components that are necessary to run Rational Rose RealTime Professional over a network are copied to the Administrative Install Target directory. The Administrative Install Target directory is created by the administrative installation of Rational Rose DevelopmentStudio RealTime Edition and should be available on the network (Refer to Rational Rose DevelopmentStudio RealTime Edition User Guide).

To install the Rational Rose RealTime Professional Edition for administrative use, follow these steps:

1. Verify that the base Rational Rose RealTime product has been installed, version 2001A.04.00.

2. Insert the Rational Rose RealTime Companion Products CD into your CD-ROM drive.

    If the system is configured with the autorun feature enabled, the setup program will run automatically and you may continue with step 4.

3. Use Windows Explorer to open a window displaying the contents of the CD-ROM. For example, double-click "My Computer" and double-click the icon for the Rational Rose RealTime Companion Products CD. Double-click the **Setup.exe** icon to run Setup.

   Note: The .exe file name extension may not be visible.

   The Setup dialog box appears followed by the Welcome dialog box.

4. Click **Next** to view the License Agreement.

   You must accept the license agreement to proceed.

   If you do not agree with the terms of the license agreement, you should exit the installation. All software and documentation should be returned to Rational Software.

   If you accept the terms and conditions of the license agreement, click **Yes**.

   The Setup Type dialog appears.

5. Select **Administrative** from the Setup Type dialog list.

   Note: An administrative installation of Rational DevelopmentStudio RealTime Edition must be completed, before installling the Rose RealTime Professional Edition for administrative use.

6. You are prompted to enter an installation key. Enter the key and click **Next**.

   Note: The Professional Edition installation key is provided in the Welcome Letter that you have received with the product shipment. Contact Rational License Support if you did not receive a Professional Edition installation key.

7. The products selected for installation are listed. Click **Next**.

   The Choose Destination Location dialog appears.

8. Browse to the Administrative Install Target directory. This is the destination path provided during the administrative installation of Rational DevelopmentStudio RealTime Edition.

9. Click **Next** to start the installation.

10. Click **Finish**.

UNIX installation

To install the Rational Rose RealTime Professional Edition, follow these steps:

1. Verify that the base Rational Rose RealTime product has been installed, version 2001A.04.00.

2. Insert the Rational Rose RealTime Companion Products CD into your CD-ROM drive.

3. Mount the CD-ROM device.

   You are usually required to be a system administrator (root or super-user) to be able to do this. See the instructions for your particular CD-ROM drive and operating system for details.

   HP-UX:

   ```
   mount -rt cdfs /dev/dsk/c201d5l1 /cdrom
   ```

   Solaris

   ```
   mount -rF hsfs /dev/sr1/cdrom
   ```

   where

   /dev/sr1 is the CD-ROM device

   Note: *In Solaris, the CD-ROM may be automatically mounted.*

4. From a shell window, change the directory to the mounted CD-ROM device.

   For example,

   ```
   cd /cdrom
   ```

5. Run the setup script.

   ```
   ./setup.sh
   ```

6. You are prompted to enter the installation key. Enter the installation key and press **ENTER**.

   Note: *The Professional Edition installation key is provided in the Welcome Letter that you have received with the product shipment. Contact Rational License Support if you did not receive a Professional Edition installation key.*

7. Review the terms of the license agreement and do one of the following:

   - To accept the agreement, type Y and press **ENTER**.
   - To read the agreement again, type R and press **ENTER**.
   - To quit, type Q and press **ENTER**.

   You must accept the license agreement to proceed.

If you do not agree with the terms of the license agreement, you should quit the installation. All software and documentation should be returned to Rational Software.

8. Select and confirm the platform settings:

    ■ To modify the platform settings, type M and press **ENTER**.

    ■ To accept the platform settings, type Y and press **ENTER**.

9. Specify the installation directory as the RoseRT subdirectory. Enter the absolute path. The install tests for a RoseRT subdirectory in the given location.

10. After the installation has completed, you can dismount the CD and store it in a safe place with the Welcome Letter.

Verify the Connexis installation

To increase efficiency and eliminate improper installation and/or setup misconfiguration, you are strongly encouraged to verify your installation after you have installed the Professional Edition package on your machine. As a minimum, you should verify your Connexis installation by using the BasicTest model provided with Connexis in $CONNEXIS_HOME/ROSERT_HOME/Connexis. This model uses the CDM transport.

Verifying your installation using BasicTest

You can easily verify your installation by using the BasicTest model provided with Connexis in $ROSERT_HOME/Connexis/C++/examples.

Host platform installation verification

The following instructions are for Windows NT and Windows 2000 setup with Microsoft Visual C++ 6.0. If you are using Visual C++ 5.0, please use the elements corresponding to VC++5.0 instead of the ones for VC++ 6.0 as indicated below. For example, instead of the NT40-x86-VCC60 package for Visual C++ 6.0, use NT40-x86-VCC50 for VisualC++ 5.0.

The following instructions are for the host platforms (Windows, Solaris, HP-UX). The package names, component names, and component instance names differ for each platform. Table 4 and Table 5 define the names that are applicable for each of the supported host platforms.

Please use the information provided in Table 4 and Table 5, when completing the following steps:

1. Start Rose RealTime.
2. Load the BasicTest model from $ROSERT_HOME/Connexis/C++/examples.
3. From the Component View, expand the component package corresponding to your host platform.
4. Select the client component and from its item menu, choose **Build** > **Rebuild All** to recompile it.
5. Select the server component and from its item menu, choose **Build** > **Rebuild All** to recompile it
6. From the Deployment View's NT40 package, expand the processor that corresponds to you host platform.
7. The client will listen at port 9100 and the server will listen at port 9900. If these ports are being used by other another application on your workstation, you will need to change them. Open the server component instance's specification sheet and change the "9900" in the -CNXep startup parameter to an available port number. Open the client component instance's specification sheet and change the "9900" specified in the "-s" argument to the server's port number. Change the "9100" in the "-CNXep" startup parameter to an available port number. Save your changes.
8. Select the server component instance and choose Run from its item menu. On the RTS panel of the instance, click the Start button to execute the server.
9. On the Model panel, select the client component instance and choose **Run** from its item menu. On the RTS panel of the instance, click the **Start** button to execute the client.
10. Verify that your output for client and server looks similar to the output shown in sections "BasicTest Server output" and "BasicTest."

Table 4   Components for supported platforms

	Component Package	Client Component	Server Component
WindowsMS Visual Studio 6.0	NT40-x86-VCC60	basicTestClient_31	basicTestServer_31
WindowsMS Visual Studio 5.0	NT40-x86-VCC50	basicTestClient_30	basicTestServer_30
SolarisGnu 2.81	SUN5-sparc-gnu-281	basicTestClient_5	basicTestServer_5
SolarisSun Workshop 5.0	SUN5-sparc-SunCC-50	basicTestClient_4	basicTestServer_4
HP-UXGnu 2.81	HPUX10-hppa-gnu-281	basicTestClient_35	basicTestServer_35

Table 5   Component Instances for supported platforms

	Component Package	Client Component	Client Component Instance	Server Component Instance
WindowsMS Visual Studio 6.0	NT40	MyNT40Workstation	basicTestClient_31Instance	basicTestServer_31Instance
WindowsMS Visual Studio 5.0	NT40	MyNT40Workstation	basicTestClient_30Instance	basicTestServer_30Instance
SolarisGnu 2.81	Solaris	MySparcstation	basicTestClient_5Instance	basicTestServer_5Instance
SolarisSun Workshop 5.0	Solaris	MySparcstation	basicTestClient_4Instance	basicTestServer_4Instance
HP-UXGnu 2.81	Hpux	MyHPWorkstation	basicTestClient_35Instance	basicTestServer_35Instance

BasicTest server output

```
Rational Rose RealTime C++ Target Run Time System
Release 6.30.B.00 (+c)
Copyright (c) 1993-2001 Rational Software
rosert: observability listening at tcp port 30399

*********************************************************************
*                Please note: STDIN is turned off.                 *
*   To use the command line, telnet to the above mentioned port.   *
* The _output_ of any command will be displayed in _this_ window.  *
*********************************************************************


Rational Software Corp. Connexis(tm) - Distributed Connection Service
(dcs)
Release 6.30.B.82
Copyright (c) 1999-2001 Rational Software Corporation

dcs: CRM Transport : enabled
dcs: CDM Transport : enabled
dcs: CRM listening at [crm://192.139.251.167:2005]
dcs: CDM listening at [cdm://192.139.251.167:9900]
dcs: target agent enabled
dcs: locator service not available
dcs: metric service enabled


BasicTest-Server-started:

Server : Received simple greeting message... sending it back

Server : test cycle completed, received rtunbound !

Server : Received simple greeting message... sending it back

Server : test cycle completed, received rtunbound !
```

Note: *The above represents a partial listing of the BasicTest Server Output.*

BasicTest client output

```
Rational Rose RealTime C++ Target Run Time System
Release 6.30.B.00 (+c)
Copyright (c) 1993-2001 Rational Software
rosert: observability listening at tcp port 30380

*******************************************************************
*                Please note: STDIN is turned off.               *
*   To use the command line, telnet to the above mentioned port.  *
* The _output_ of any command will be displayed in _this_ window. *
*******************************************************************


Rational Software Corp. Connexis(tm) - Distributed Connection Service
(dcs)
Release 6.30.B.82
Copyright (c) 1999-2000 Rational Software Corporation


BasicTest-Client-started:

dcs: CRM Transport : enabled
dcs: CDM Transport : enabled
dcs: CRM listening at [crm://192.139.251.167:2010]
dcs: CDM listening at [cdm://192.139.251.167:9100]
dcs: target agent enabled
dcs: locator service not available
dcs: metric service enabled

Client : sending a greeting message...

->Client: received message:
RTString"Hello, Welcome to the Connexis world!"

Client : unbound received

Client : reregistering SAP

Client : sending a greeting message...

->Client: received message:
RTString"Hello, Welcome to the Connexis world!"

Client : unbound received
```

Note: The above represents a partial listing of the BasicTest Client Output.

Uninstalling the Professional Edition

Uninstalling in Windows

To uninstall the Rational Rose RealTime Professional Package:

1. Save any model changes that you have made the example models.

2. From the Start menu, select **Start > Programs > Rational Rose RealTime Companion Products > Uninstall Companion Products for Rational Rose ReaTime**.

   Note: *Uninstalling Rose for RealTime will not uninstall Rational Rose RealTime Professional products.*

Uninstalling in Solaris or HP-UX

To uninstall the Rational Rose RealTime Professional Package:

1. Save any user models or user data files in another location before removing the installation directory.

2. Remove the installation directory and all of its contents.

3. Remove the following files from the $ROSERT_HOME/bin/registry directory:

   - Connexis.reg

   - Connexis.svr

   - rqart.svr

4. Recreate the Rose RealTime registry to completely remove the Connexis add-in by entering the following:

   ```
   RoseRT -recreate_registry
   ```

Chapter 5

Converting Models from Connexis Version 2000.02.10

This section describes how to convert a model from Rational Connexis version 2000.02.10 to Rational Connexis, version 2001A.04.00.

Converting Connexis version 2000.02.10 Models to Connexis Version 2001A.04.00 Models

If you are using version 2000.02.10 of Connexis, the Connexis Model Conversion Tool searches your model, identifying any incompatibilities, and provides a detailed description, explaining the changes. Table 6, explains the changes that are made to your model during the conversion process.

Table 6   Model Conversion for Connexis version 2000.02.10 to Connexis version 2001A.04.00

Condition	Change
RTDXBase, RTDXBase_Agent, RTDXBase_Locator, RTDXBase_Agent_Locator fixed capsule roles are in the model	Replaces the capsule roles with the corresponding RTDBase configuration. Integrates the CDM transport with the capsules containing the new RTDBase or RTDBase_Locator capsule roles. Integrates the CRM transport into the containing capsule.
RTDBase, RTDBase_Locator fixed capsule roles are in the model but do not have the CDM transport as an attribute.	Integrates the CDM transport using a composite aggregation relationship into the capsules containing RTDBase or RTDBase_Locator capsule roles.
RTDXBase optional capsule role is in the model	Converts to the RTDBase and integrates the CRM and CDM transports.
RTDXBase_Agent optional capsule role is in the model	Converts to RTDBase_Agent and integrates the CRM transport.
RTDXBase_Locator optional capsule role is in the model	Converts to RTDBase_Locator and integrates the CDM and CRM transports
RTDXBase_Locator_Agent optional capsule role is in the model	Converts to RTDBase_Locator_Agent and integrates the CRM transport.
RTDBase or RTDBase_Locator optional capsule role is in the model	Users are notified that the CDM transport is integrated.
RTDBase_Agent or RTDBase_Locator_Agent optional capsule role is in the model	Searches the model identifying any of the components that have a dependency on the ORB. If the dependency exists, the CRM transport is integrated.

Table 6   Model Conversion for Connexis version 2000.02.10 to Connexis version 2001A.04.00

Condition	Change
A component depends on a XDCS library component	Changes the component dependency to use the DCS library component.
The TargetConfiguration property of a component references a -CNX-M or a -CNX- target configuration	Removes the -CNX- or -CNX-M from the TargetConfiguration name.

To convert your model:

1. Load a model that uses version 2000.02.10 of Connexis in Rose RealTime.

2. Select **Tools** > **Connexis** > **Convert Model**.

   The "Convert Model" dialog appears.
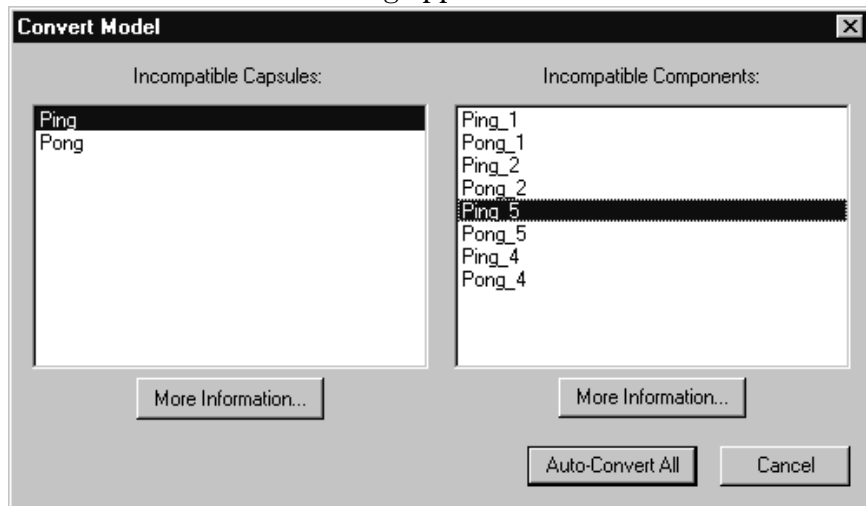
Figure 1   Convert Model dialog

3. View more information about incompatible capsules and components by selecting the capsule or the component from the dialog and clicking **More Information**.

   The "Element Information" dialog appears.
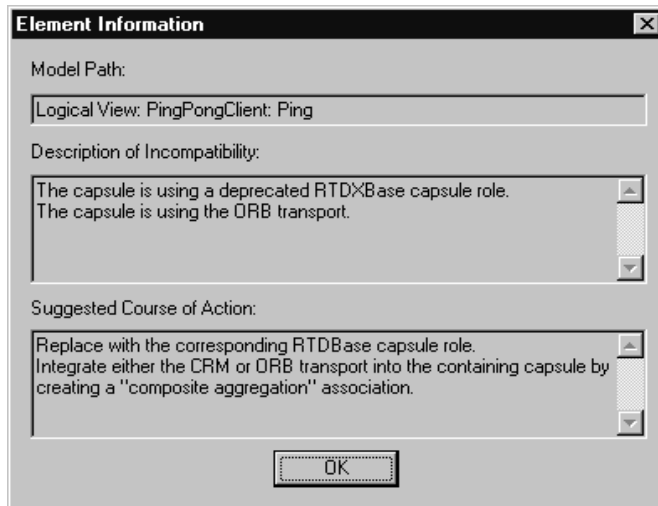
Figure 2   Element Information dialog

The "Element Information" dialog provides the following
information:

Table 7   Element Information dialog chart

Information Heading	Description
Model Path	Shows the path of the selected capsule or component.
Description of Incompatibility	Explains the reason for the incompatibility between version 2000.02.10 and version 2001A.04.00.
Suggested Course of Action	Explains how the Conversion tool will make the capsule or component compatible with Connexis version 2001A.04.00.

4. Click **OK** once you have read the information, and repeat step three
   for additional capsules and components that appear in the
   "Convert Model" dialog.

5. Click **Auto-Convert All** from the "Convert Model" dialog.

The Conversion Tool converts the incompatible capsules and components in your model. As the conversion takes place, the Conversion Tool may prompt you to confirm some conversion changes.

Note: Only run the Conversion Tool once. If you run the tool a second time, the information displayed in the Convert Model dialog may not be accurate.

Verifying Component Compatibility with Connexis Version 2001A.04.00.

The Component Verification Tool verifies that a component is compatible with Rational Connexis version 2001A.04.00.

To verify that a component is compatible with version 2001A.04.00:

1. Right-click a component.

2. Select **Connexis** > **Verify**.

    The "Component Verification Results" dialog appears.
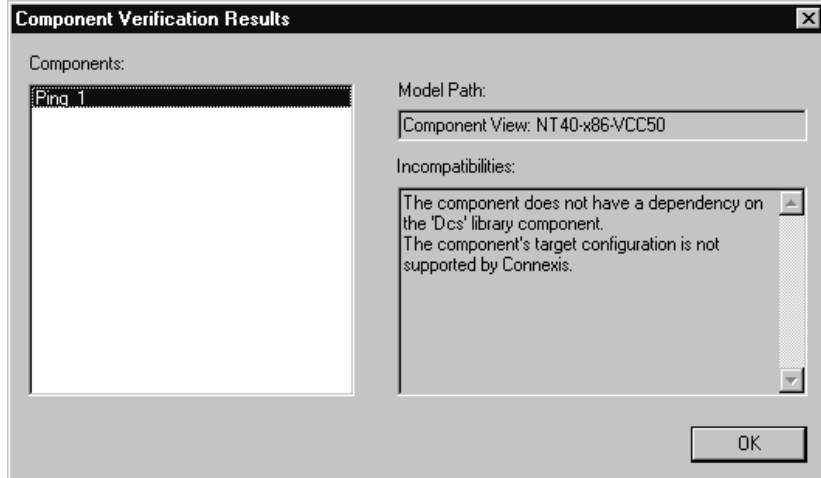
Figure 3   Component Verification dialog

3. Select the component from the "Components" area.

The model path and the incompatibilities for the selected component appear.

4. Open the component from the browser and fix the incompatibilities.

   Note: *You do not have to close the Component Verification Results dialog while fixing the incompatibilities.*

5. Click **OK**.

Support

If you encounter any problems with migrating your model to Connexis version 2001A.04.00, refer to "Technical Support" on page 47.

Chapter 6

Troubleshooting and Known Issues

The following is a list of the problems and limitations in the Rational Rose RealTime Professional Package products at the time of release. Some of these problems may have been addressed by the time you read this. For the most recent list of known problems and any fixes that may have been published, please visit the Rational Rose RealTime web site at:

http://www.rational.com/support/

Select **Upgrades and Patches**, then select **Rational Rose RealTime**.

Target Porting Package

There were no known issues at the time of release. Please visit the Rational Web Site for the latest Release Notes, patches and information:

Target Deployment Package

There were no known issues at the time of release. Please visit the Rational Web Site for the latest Release Notes, patches and information.

Rational Connexis

The following information explains the trouble shooting and known issues for Rational Connexis version 2001A.04.00.

Troubleshooting

Transport Integration Framework

When implementing your Transport Integration using the Transport Integration Framework (TIF), you must create a component to build the Transport Integration. The Transport Integration component requires an additional inclusion path for the targetRTS.

Add an inclusion for:

$(ROSERT_HOME)/C++/TargetRTS/src/target/<your target>, where <your target> maps to the target you are building.

Example:

If building for "NT40," the inclusion path would be:

$(ROSERT_HOME)/C++/TargetRTS/src/target/NT40

Turning off auditing for a single transport is not recommended

You may not be able to turn off auditing for a single transport. This is because setting -CNXtap=0 will result in no auditing taking place for the CRM and CDM transports. The internal timer used by the transporter will be set to 1 second. This may affect the -CNXtrre and -CNXtbrd parameters which are rounded up to a multiple of -CNXtap. Any transports integrated with an audit type other than "No Audit," will find the -CNXtcapi and -CNXtcapo periods to be a multiple of 1 second. Setting -CNXtap to be > 1 second will affect the frequency at which metrics can be collected by the viewer and other DCS enabled applications.

Signals no longer supported

The RTDDCSRunning and the RTDDCSrunningReply signals are no longer supported in this version of Connexis. The recommended fashion for determining if DCS is running, is to wait for the rtBound signal, indicating that a successful connection to the RTDInitStatus publisher has been made.

Rational Quality Architect - RealTime Edition

The following information explains the troubleshooting and known issues for Rational Quality Architect - RealTime Edition version 2001A.04.00.

Limitations

States in a specification sequence diagram are not referenced to states in a model (they are independent).

RQA-RT is not supported for C models.

Only leaf node instances in the interaction/sequence diagram can be specified as a driver/stub.

Within a sequence diagram, each interaction instance without a specified role must have a unique name. Only one interaction instance per test set can be left unnamed.

Within a sequence diagram, if you run multiple tests in a single pass, a port from a CUT can be used by only one interaction instance with an unspecified role.

As it is impossible to specify cardinality index for the interaction instances with no roles specified, care should be taken then using such objects with capsules under test and/or ports with cardinality greater than 1.

If the generated trace sequence diagram is directly compared with the specification diagram, it is important to remember that such comparison is asymmetric – sequence diagram should be used in place of sequence diagram; trace diagram should be used in place of trace diagram.

When running multiple specifications in a test in sequence, ensure that you complete each sequence when using a CUT, so that the CUT is self-contained. This prevents a CUT from replying to a message from a CUT in the previous sequence diagram.

In a controlled model when you generate a new harness with affected model elements not checked out, many warnings will be generated.

In RQA-RT Java, there may be some problems when specifying deeply nested replicated subcapsules as drivers/stubs. The RQA-RT test harness will not be able to distinguish particular driver instances if driver cardinality is greater than 1. This might lead to unexpected behavior as settings of the first driver instance (like minimum run time) will be used for all driver instances. This limitation does not applies to the drivers present on the top level of driver selection dialog and drivers with cardinality equal to 1.

Additional documentation on create messages and sequence diagrams

The **Item Properties** in the Create Message Specification dialog, with the exception of **Thread**, only apply if you are creating a Capsule Under Test (CUT). **Thread** applies in every case. The **Item Properties** entries are as follows:

■   Capsule class - a capsule name. Enter a value here only if you want to override the default capsule class associated with the role that is associated with the interaction instance being created.

■   Initial data - Enter a value here only if your Capsule Under Test (CUT) requires data on startup. To provide data you must specify an attribute in the driver sending the create message with the appropriate initial values. You cannot provide initial data in create messages sent from the environment.

■   Data Descriptor - if you provided initial data, you must specify the type descriptor of the type of data that you specified. This is in the format `RTType_<type of initial data>`

■   Thread name

Additional documentation on send message specification data field format for Java

■   For the data to be passed with the messsages, the data type should be specified as `<data_type> <constructor_arguments>`. For example, to pass Integer object referring to the number 5, place the following line: `Integer 5` or `java.lang.Integer 5`

■   If `<data_type>` is ommited, `Integer` is assumed.

■   The `<constructor_arguments>` should contain the exact line to be passed as an argument to constructor. For example, for the `MyObject(Integer, String)` the following line can be used: `MyObject 5, "Acme"`

Note: *No additional brackets or quotes need to be placed around*
`<contructor_arguments>`

Chapter 7

Documentation Updates

For the most recent documentation updates please visit the Rational Rose RealTime web site at:

www.rational.com/support

Select **Documentation**.

Chapter 8

Technical Support

This section describes how to submit problem reports, feature requests and support requests to Rational Technical Support.

Submitting Problem Reports

With Rational Rose RealTime, you can email problem reports to the Rational Software Technical Support department that services your location. When you email a problem report directly from the Rose RealTime application, a wizard guides you through the process, ensuring that you provide the correct information to the Rational Technical Support team. This information includes contact and location information, and a detailed description of the problem that you are reporting.

To submit a problem report:

1. From the **Help** menu, click **Email Technical Support**.

   A submenu appears, providing you with three options.

2. Click **Problem Report**.

   The General Information dialog appears.

3. Type your contact and location information in the text areas provided and click **Next**.

   The Problem Report - Additional Information dialog appears.

4. In the **Defect Title** text area, type a detailed name for the problem that your are reporting.

5. Select the type of problem that you are reporting from the appropriate list boxes.

6. Describe the problem, using the categories provided in the **Details** area.

7. Click **Next**.

   The Email Summary dialog appears.

8. Ensure that the information that appears in the Email Summary dialog is accurate.

   Note: *The email information displayed in the Technical Support Email Address is choosen based on the location information that you provided in the General Information dialog. It is not recommended that you edit the e-mail address.*

9. If you want to save or print a copy of the email, click the appropriate button.

10. Click the **Send Email** button to send your email.

Submitting Feature Requests

With Rational Rose RealTime, you can email feature requests to the Rational Software Technical Support department that services your location. When you email a feature request directly from the Rose RealTime application, a wizard guides your through the process, ensuring that you provide the correct information to the Rational Software Technical Support department. This information includes contact and location information, and a detailed description of the feature that your are requesting.

To submit a feature request:

1. From the **Help** menu, click **Email Technical Support**.

   A submenu appears, providing you with three options.

2. Click **Feature Request**.

   The General Information dialog appears.

3. Type your contact and location information in the text areas provided and click **Next**.

   The Feature Request - Additional Information dialog appears.

4. In the **Request Title** text area, type a detailed name for the Feature that you are requesting.

5. Select the level of urgency for the feature that you are requesting.

6. Describe the feature, using the categories provided in the **Details** area.

7. Click **Next**.

   The Email Summary dialog appears.

8. Ensure that the information that appears in the Email Summary dialog is accurate.

   Note: *The email information displayed in the Technical Support Email Address is choosen based on the location information that you provided in the General Information dialog. It is not recommended that you edit the e-mail address.*

9. If you want to save or print a copy of the email, click the appropriate button.

10. Click the **Send Email** button to send your email.

Submitting Support Requests

With Rational Rose RealTime, you can email Support requests to the Rational Software Technical Support department that services your location. When you email a Support request directly from the Rose RealTime application, a wizard guides you through the process, ensuring that you provide the correct information to Rational Software Technical Support department. This information includes contact and location information, and a detailed description of the support request that you are submitting.

To submit a support request:

1. From the **Help** menu, click **Email Technical Support**.

   A submenu appears, providing you with three options.

2. Click **Support Request**.

   The General Information dialog appears.

3. Type your contact and location information in the text areas provided and click **Next**.

   The Support Request - Additional Information dialog appears.

4. In the **Request Title** text area, type a detailed name for the request that you require.

5. Select the level of urgency for the question with which you need help.

6. Type your question in the Question text area.

7. Click **Next**.

    The Email Summary dialog appears.

8. Ensure that the information that appears in the Email Summary dialog is accurate.

    Note: *The email information displayed in the Technical Support Email Address is choosen based on the location information that you provided in the General Information dialog. It is not recommended that you edit the e-mail address.*

9. If you want to save or print a copy of the email, click the appropriate button.

10. Click the **Send Email** button to send your email.

Contacting Rational Technical Support by Email or Telephone

When contacting Rational Technical Support by email or by telephone, please be prepared to supply the following information:

■ Name, telephone number, and company name

■ Product name and version number

■ Operating system and version number (for example, Windows NT 4.0, Windows 2000, Solaris 2.6/2.7/2.8, or HP-UX 10.20)

■ Computer make and model

■ Your case id (if you're calling about a previously reported problem)

■ A summary description of the problem, related errors, and how it was made to occur

If your organization has a designated, on-site support person, please try to contact that person before contacting Rational Technical Support.

You can obtain technical assistance by sending electronic mail to the appropriate e-mail address. Electronic mail is acknowledged immediately and is usually answered within one working day of its arrival at Rational. When sending an email place "Rational Rose RealTime" in the subject line, and in the body of your message include a description of your problem.

When sending email concerning a previously-reported problem, please include in the subject field: "CaseID: v0XXXXX", where XXXXX is the caseid number of the issue. For example:

```
CaseID: v0176528 New data on rational rose realtime install issue
```

Sometimes Rational technical support engineers will ask you to fax information to help them diagnose problems. You can also report a technical problem by fax if you prefer. Please mark faxes "Attention: Technical Support" and add your fax number to the information requested above.

Telephone and fax numbers for Rational Technical Support are contained in the following table. If you have problems or questions regarding licensing, please see "License Support Contact Information" on page 52.

Table 8   Support Telephone and Fax

Region	Telephone Number	Fax Number
Americas	800-433-5444	408-863-4300
Asia Pacific (includes support for Japan, China, India, Korea, Taiwan)	+61-2-9419-0111	+61 2 9419 0123
Europe, Middle East, and Africa (includes support for Israel)	31 (0)20 4546 200	+31 23 569 4302
Other worldwide locations	408-863-5000	

Email addresses for Rational Technical Support are listed in the following table.

Table 9   Support Email

Region	Email Address
Americas and other worldwide locations	support@rational.com
Asia Pacific (includes support for Japan, China, India, Korea, Taiwan)	support@apac.rational.com
Europe, Middle East, Africa (includes support for Israel), and Scandinavia	support@europe.rational.com

License Support Contact Information

If you have a problem or questions regarding the licensing of your Rational Software products, please contact the Licensing Support office nearest you.

Telephone numbers for license support are listed in the following table. Ask for, or select, Licensing Support.

Table 10   License Support Telephone and Fax

Region	Telephone Number	Fax Number
Americas	800-433-5444	781-676-2510
Europe, Israel, and Africa	+31 23 554 10 62	+31 23 554 10 69
North Asia Pacific (Mainland China, Hong Kong, Taiwan)	+852 2143 6382	+852 2143 6018
Korea	+82 2 556 9420	+82 2 556 9426
South Asia Pacific Australia, New Zealand, Malaysia, Singapore, Indonesia, Thailand, The Philippines, Vietnam, Guam and India	+612 9419 0100	+612 9419 0160
Japan	+81 3 5423 3611	+81 3 5423 3622

Email addresses for license support are listed in the following table.

Table 11   License Support Email

Region	Email Address
Americas	lic_americas@rational.com
Europe, Israel, and Africa	lic_europe@rational.com
North Asia PacificMainland China, Hong Kong, Taiwan, and Korea	lic_apac@rational.com
South Asia Pacific Australia, New Zealand, Malaysia, Singapore, Indonesia, Thailand, The Philippines, Vietnam, Guam and India	lic_apac@rational.com
Japan	lic_japan@rational.com