Installing Rational RequisitePro®

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Preface

Overview

Welcome to *Installing Rational RequisitePro*. This document provides the information you need to install RequisitePro, configure enterprise databases for RequisitePro projects, and configure your Web server for RequisiteWeb.

Rational RequisitePro, the premier requirements management tool, integrates a powerful multi-user requirements database utility with the familiar environment of Microsoft Word for Windows, enabling you to simultaneously work with a requirements database and requirements documents.

The Rational Software Setup program lets you perform standard and custom installations of RequisitePro. The common install procedure allows you to install enterprise database configuration scripts, RequisiteWeb components, and related documentation.

This manual provides you with:

- Information needed to perform a typical installation of RequisitePro and RequisiteWeb.

- Information needed to remove RequisitePro and RequisiteWeb from your system.

- Instructions for configuring Oracle and Microsoft SQL Server databases for RequisitePro projects.

- Instructions for installing RequisiteWeb server components on IIS and Apache Web servers.

- Notes on configuring the Rational E-mail Reader for use with RequisitePro projects.

Audience

This guide is intended for anyone who is installing RequisitePro and its related components. It assumes a basic knowledge of Microsoft Windows and its conventions. Enterprise database configuration requires the support of a database

administrator. To install and configure RequisiteWeb, you should be familiar with the selected platform and Web server.

Other Resources

- The **release notes** appear at the end of the RequisitePro installation. They are available from a link in the **Let's Go RequisitePro** application, which appears when you first launch RequisitePro. They are also available on the Start menu in the Rational RequisitePro program group. You must have a Web browser to view the release notes.

- The *Administering Licenses for Rational Software* manual, included with your installation materials, describes the Web-based license manager AccountLink, the Rational License Key Administrator, and the Rational software licensing model. This manual also provides instructions and troubleshooting information for acquiring, installing, and configuring licenses. You must install license keys to use Rational products; you can install them before or after you install the products.

- The guide *Using Rational RequisitePro* and other Rational product documentation is included on a separate CD: *Rational Solutions for Windows – Online Documentation CD*. Rational online manuals are presented in PDF format. To read PDF files, you must install Adobe Acrobat Reader, available from the Adobe Web site, http://www.adobe.com/, or on the *Rational Solutions for Windows* CD in the extras directory.

- **Online Help.** You can view online help within RequisitePro whenever you need assistance. To display the Help Contents, click the Help button on the Tool Palette; on the Help menu, click Contents and Index; or press the F1 key. You can also click the Help button in any dialog box.

- For information on integrating RequisitePro with Rational Rose and Rational ClearQuest, refer to the manuals *Getting Started with Rational Suite AnalystStudio* and *Configuring Rational Suite* on the *Rational Solutions for Windows – Online Documentation* CD.

- For more detail on the Rational Software Setup program, including information on implementing a silent installation, refer to the manual *Installing Rational Suite* on the *Rational Solutions for Windows – Online Documentation* CD.

- **Rational Training Services.** For more information on training opportunities, see the Rational University Web site: http://www.rational.com/university.

Rational RequisitePro Documentation Roadmap

START HERE

Let's Go RequisitePro

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- System Requirements
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- Quick Start Tour
- Requirements Management Tour

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PROJECT ADMINISTRATOR

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Contacting Rational Technical Publications

To send feedback about documentation for Rational products, please send e-mail to our technical publications department at `techpubs@rational.com`.

Contacting Rational Technical Support

If you have questions about installing, using, or maintaining this product, contact Rational Technical Support as follows:

Table 1   Rational Technical Support Information

Location	Contact Information	Notes
U.S. and Canada	800-433-5444 781-676-2450 support@rational.com	When sending e-mail: ▪ Specify the product name in the subject line, for example, "RequisitePro". ▪ For existing issues, include your case ID in the subject line.
Europe	+31 (0) 20 4546 200 support@europe.rational.com	
Asia Pacific	+61-2-9419-0111 support@apac.rational.com	
World Wide Web	http://www.rational.com	Click the Technical Support link.

Please help our Technical Support staff deliver quality customer service by providing complete information. The *techsupport.html* file, which is located in the RequisitePro installation directory and is also available by clicking **Help** > **Contacting Technical Support**, contains a Customer Information Form. You can use this form to document problems, questions, or suggestions and to detail your company and system information. The form can be copied into your e-mail message.

Attach your *error.log* file (located in the RequisitePro installation directory in the bin folder) if you are getting an error message. Add any files, screen captures, and other information you feel are relevant.

Licensing Support

Table 2 provides Rational License Support contact information. If you have questions about acquiring license keys for your Rational Software products, contact Rational License Support. See the online help in the Rational License Key Administrator for additional licensing support information.

Table 2   Rational Licensing Support

Region	Telephone	E-mail
North and South America	1-800-728-1212 1-781-676-2510 FAX: 781-676-2510	lic_americas@rational.com
Europe (includes Israel and Africa)	Phone: +31 20 4546 200 Fax: +31 20 4546 202	lic_europe@rational.com
Asia Pacific	Phone: +61-2-9419-0111 FAX: +61-2-9419-0123	lic_japan@rational.com (Japanese) lic_apac@rational.com (English only)

Other Contacts

Joining the RequisitePro Users Mailing List

Rational has created an open e-mail list "req_forum@rational.com" for customers to exchange ideas on using RequisitePro. This list is monitored to ensure that product questions and problems are being answered. To subscribe to the mailing list, go to the following Web site: `http://www.rational.com/products/reqpro/usergroups`.

Before You Install

1

This chapter presents system requirements and general guidelines to help you prepare for installing or upgrading Rational RequisitePro. This chapter includes the following topics:

- *System and Software Requirements* on page 2
- *Administrator Privileges* on page 3
- *Installing Multiple Rational Products* on page 3
- *General Requirements* on page 4
- *Software Use* on page 5
- *Installation Types* on page 5
- *Installing Shared Files* on page 6
- *Upgrading from an Earlier Version of Rational RequisitePro* on page 7
- *Silent Installations* on page 7

System and Software Requirements

Table 3 describes the system and software requirements for installing the RequisitePro client.

Table 3   RequisitePro Client Requirements

Item	Requirement
Operating Systems	One of the following: ■ Microsoft Windows 2000 Professional Service Pack 1 ■ Microsoft Windows 98 Second Edition ■ Microsoft Windows NT 4.0 Workstation Service Pack 6a ■ Microsoft Windows 95 OEM Service Release 2 ■ Microsoft Windows Millennium Edition
Processor	200 MHz or greater; 300 MHz or higher is recommended
Memory	64 MB or greater; 128 MB is recommended. For UCM, 256 MB is recommended for RequisitePro project administrators.
Disk Space	100 MB
Monitor	800 X 600 X 256-color video resolution, or greater; High Color or True Color recommended
Mouse/pointing device	Microsoft Mouse or compatible pointing device
Word Processor	Microsoft Word 97 Service Release 2 or Word 2000 Service Release 1*
Requirement Metrics Reporting	Microsoft Excel 97 Service Release 2 or Excel 2000 Service Release 1*
Browser	Microsoft Internet Explorer 4.0 Service Pack 1 or later* (Required for RequisitePro operation. For RequisiteWeb requirements, see *RequisiteWeb System Requirements* on page 38.)
LAN Support	Microsoft networks
Automated License Key Requests	Internet connection required for automated license requests
Oracle Client	Versions 7.3.4, 8.0.5, 8.1.5, 8.1.6

*Recommendations for Microsoft Office:
■ with Windows 95 and Windows NT, use Office 97;
■ with Windows 98, Windows ME, and Windows 2000, use Office 2000.

Table 4 describes the system and software requirements for installing an enterprise database for RequisitePro.

Table 4   RequisitePro Enterprise Database Requirements

Item	Requirement
Microsoft SQL Server	7.0 or 2000
Oracle Server	Versions 7.3.4, 8.1.5, 8.1.6 **Note:** If you are using a version 7.3.4 server, we recommend that you use a version 7.3.4 client.
Memory	128 MB minimum; for projects with approximately 50,000 requirements, 256 MB is recommended. **Note:** Memory requirements vary depending on the number of concurrent users, the amount of data being requested, and the size of the database.
Disk Space	96 MB

Administrator Privileges

To use the Rational Software Setup program on a Windows NT or 2000 system, you must have Windows NT or 2000 administrator privileges on the local system. Log in as one of the following users:

- local administrator
- member of the local administrator group
- domain administrator who is a member of the local administrator group

Installing Multiple Rational Products

If you install individual Rational products and a Rational Suite edition on the same system, the system user will first obtain a Suite license by default. To change the order in which users obtain licenses on that system, see the *Administering Licenses for Rational Software* manual.

General Requirements

Here is a list of general requirements for installing Rational RequisitePro and related components for the first time at your site.

1   Make sure that you have a current backup of your Registry and system directories.

2   Install the Rational license keys. You can acquire and import the Rational license keys before or after installing Rational RequisitePro. See the *Administering Licenses for Rational Software* manual for more information about licenses, including the procedure for obtaining a license key.

    Note: You must install Rational licenses to use Rational products.

3   The Rational Software Installation procedure uses C:\Program Files\Rational as the default install path.

    If your C:\ drive lacks sufficient free disk space, you may either specify another drive during the installation procedure or make space available on the default drive. Some files will be installed on your C:\ drive; the Software Setup wizard will report the amount of space required on all drives for your installation.

    Note: If you have already installed a Rational product, you cannot select an alternate location for another Rational product installation.

    Note: The instructions in this guide assume that you are installing Windows applications on your C:\ drive. If this is not the case, substitute the appropriate drive when performing all procedures.

4   The RequisitePro installation requires specific versions of Microsoft files whether you are installing RequisitePro for the first time or upgrading RequisitePro from an earlier version. The Rational Software Setup program will install the files, or you may choose to install the files from other sources. For more information, see *Installing Shared Files* on page 6.

5   To install the database configuration scripts (for Oracle or SQL Server), select the **Custom/Full** Installation Type in the Rational Software Setup procedure.

Software Use

The Rational Software Setup program lets you install Rational RequisitePro for use by a client, administrator, or evaluator. During the setup program, you select the installation option based on the way you will use RequisitePro on this system. See the table below.

Table 5   Software Use Installation Choices

User	Description
Client	Choose this option if you do not need to administer Rational RequisitePro software.
Administrator	Choose this option if users of client software depend on you to set up and manage the team's projects and databases.
Evaluator	Choose this option if you want to do a minimum amount of configuration work before using the product. Choosing this option does not restrict your use of the software.

Installation Types

The Rational Software Setup program provides you with several installation types, allowing you to install the configuration most appropriate for your system. The following table describes each type.

Table 6   Installation Types

Type	Description
Typical	- Installs the most commonly used features for a product. - Use this option for standard installations.
Custom/Full	- Allows you to add or remove product features for installation. - Defaults to all features in a Typical installation. - Use this option to install Web Server Components on a Web Server for RequisiteWeb, or database configuration scripts for Oracle and SQL Server.
Compact/Laptop	- Installs a subset of the standard configuration. May omit optional files, including online documentation or online help. - Use this option for installations on systems with limited disk space.

Table 6   Installation Types

Type	Description
Minimal	▪ Installs the files needed to run the program from a CD or network location. ▪ Use this option to run the program from a centrally managed location. **Note:** You must have write permission to run products from a minimal install area.

Installing Shared Files

The Rational Software Setup program installs shared components that are provided by sources other than Rational. These software components are potentially used by other applications on your system. Setup installs the U.S. English version of these files. It does not overwrite newer file versions.

The Setup program displays a list of any shared components that require updates. You must install the listed files before continuing the installation.

When to Install Files Yourself

In general, we recommend that you allow the installation procedure to install shared files for you; however, you may want to install the files yourself under the following circumstances:

▪ You are using a U.S. English system, but installing new files may invalidate your current environment. In this case, you should determine how to correct your environment so that you can run existing tools and the Rational products you want to install.

▪ Your site may mandate that you obtain shared files directly from the source, for example, from Microsoft, rather than using files supplied by a third party. Or your site may prohibit end users from installing shared components.

▪ You prefer to install shared files that are localized to your language rather than the U.S. English versions of the files supplied by Rational.

The check box, **Replace files with newer versions in English**, is enabled when you have installed earlier versions of the files that are localized to a non-U.S. English language. If you select this check box, the U.S. English versions of the files will replace your versions. If you clear this check box, you can save and print the list of files to be updated. You should update the files yourself.

- There may be a later version of the files available. Rational products should work with the supplied version of shared files or any later versions.

Upgrading from an Earlier Version of Rational RequisitePro

Here is a list of general requirements for upgrading Rational RequisitePro at your site.

- If you are using multiple products from the Rational Suite, all products must be from the same Suite version (installed from the same CD-ROM). For information about the order in which you should upgrade integrated products and convert schemas and data, see *Configuring Rational Suite* and the *Rational Suite Release Notes.*

- For information on removing RequisitePro from your system, see *Removing RequisitePro* on page 14.

- To upgrade RequisiteWeb, you must remove earlier versions of RequisiteWeb. See *Removing RequisiteWeb* on page 78.

Silent Installations

You can configure Rational Software Setup to perform silent installations of Rational software. Silent installations allow you to perform an installation of a Rational Software product, using the same parameters, repeatedly on a number of systems. For more information on silent installations, see the guide *Installing Rational Suites* on the Rational Solutions for Windows – Online Documentation CD.

Installing Rational RequisitePro

<div style="text-align: right; font-size: 3em;">2</div>

This chapter describes how to use the Rational Software Setup wizard to install Rational RequisitePro, version 2001.03.10.

For the most current information related to RequisitePro features and known issues, refer to the release notes, which appear at the end of the RequisitePro installation. The release notes are available from a link in the Let's Go RequisitePro application, which appears when you first launch RequisitePro. After the program is installed, you can access the release notes from the Windows Start menu in the Rational RequisitePro program group.

Installing RequisitePro with Rational Software Setup

Caution: Interrupting an installation that is in progress may leave your system in an indeterminate state. If you try to close the Rational Software Setup window while the installation is in progress, you are asked to confirm that you want to exit from the incomplete installation.

This section describes a typical installation of Rational RequisitePro.

1   Insert the Rational Solutions for Windows CD into your system's CD drive. The setup program starts automatically.

   If autorun is disabled on your system, click **Start > Run**. Using the drive letter of your CD-ROM drive, enter `drive:\SETUP.EXE`.

   The Rational Software Setup wizard will guide you through the software installation. On each dialog box, click **Next** to proceed to the next one.

2   The **Rational Software Setup** dialog box provides general information about the software installation. Click **Browse** to review Rational product information. To view this product gallery, you must have a Web browser.

   If you do not have Rational Suite PerformanceStudio on your system, go to Step 4.

3 If the Setup program detects Rational Suite PerformanceStudio on your system, you must remove PerformanceStudio before you can install a Rational Suite product. Rational has merged this Suite with Rational TestStudio and therefore no longer upgrades PerformanceStudio. You can direct the Setup program to remove PerformanceStudio or cancel the Setup program.

Note: The Setup program also removes the FLEXlm Server software that was installed with PerformanceStudio. If you have been using the server software to manage your license keys, you must reinstall the FLEXlm License Server software.

4 On the Select Installation Option dialog box, choose **Install Rational Product**. The Rational Software Setup dialog box appears, which offers licensing options.

5 Select the licensing option that your system administrator has determined for managing RequisitePro licenses. For more information about license servers and Rational license key files, see the *Administering Licenses for Rational Software* manual or the Rational License Key Administrator online Help. The License Key Administrator appears in your **Start** menu when have installed Rational products or the FLEXlm License Server software.

Table 7   License Options

Option	If you select this option
Import License File	You should import the Rational license file to the system that will run Rational products.
Obtain License Key from Server	Fill in the name of the license server if the FLExlm license server software is already installed and configured on that server.
Enter Temporary Node-Locked Key	The **Enter Temporary Key** dialog box appears where you can enter the license key and expiration date found on your license key certificate. This dialog box also prompts you to select a Rational product to install.
Upgrade or Reinstall Product	You do not have to install new license keys because you can use the product license keys that you already have installed.
Install Product before Licensing	You can install Rational products before you install floating or node-locked license keys.

6 The Choose Product to Install dialog box displays the installation options for the software installation. If you are not licensed for a particular product, it will not appear in the product list. Select **Rational RequisitePro**.

7 The License Agreement dialog box displays the Rational Software license agreement. If you accept the license agreement, the installation continues installing Rational Suite on your system. If you do not accept the license agreement, the installation does not let you proceed further. If you exit from the installation by clicking the **Finish** button at this point, no changes are made to your system.

8 The Setup Configuration dialog box describes the setup options for this software installation. Select the installation option and install path. The options are **Typical**, **Custom/Full**, **Compact/Laptop**, and **Minimal**, described in *Installation Types* on page 5.

Confirm that you have sufficient free space for the installation. If the amount of free space is less than the amount required, either exit from the installation procedure and make more space available on the specified disk or specify an alternate Install Path. To specify another installation path, type the new path in the **Install Path** field or use the **Browse** button to select a drive and directory.

The installation program requires that all Rational programs be installed in the same directory. If any Rational product has been previously installed with the Rational Software Setup program, the browse option and Install Path field are disabled. You must remove and reinstall Rational Suite to specify a new Install Path.

Note: The setup procedure installs Microsoft Core Components and some additional files on your C:\ drive, even if you have specified an alternate drive for installation. These files can require up to 20 MB of disk space on your C:\ drive.

If you are an administrator who is responsible for setting up an Oracle or SQL Server database for RequisitePro, select the **Custom/Full** installation option. If you choose either of the other options, go to step 10. When you choose the **Custom/Full** installation option, the Choose Features dialog box appears, which lets you specify exactly which features and subfeatures to install on your system. Use the **+** to expand and select or deselect options as desired. Dependencies between some features may force an installation option, even if you have deselected it.

9 At the Choose Features dialog box, click Rational RequisitePro and select the **Oracle Setup** or **SQL Server Setup** option if you plan to use one of those databases for your RequisitePro projects.
If you select either option, the program will install schema creation scripts in one or both of the following default locations on your local machine:
```
c:\Program Files\Rational\RequisitePro\database\oracle
c:\Program Files\Rational\RequisitePro\database\sqlserver
```

For more information on configuring Oracle or SQL Server for RequisitePro projects, refer to *Configuring Enterprise Databases* on page 15.

10 At the Software Use dialog box, select the option that corresponds to your intended use. For more information, refer to *Software Use* on page 5.

11 The Update Shared Components dialog box appears if the Rational Software Setup program needs to update some shared files or components on your system. Click **Next** to have Rational Software Setup install these files for you or **Cancel** to install these files yourself. For additional information, see *Installing Shared Files* on page 6 or the Rational Software Setup online help.

Note: The Rational Software Setup wizard does not recalculate the disk space required for your updated selections.

12 The Upgrade Compatibility dialog box appears if you have older Rational products installed on your system. Because Rational tools share files and components, this installation can cause the older Rational products to stop working. You will see no visual clue to indicate that the older products may be compromised.

For each of the older products listed, we strongly recommend that you take one of the following actions:

▫ **Upgrade it:** Complete this installation, and then restart the Setup wizard to upgrade the next product. Upgrading a product updates all necessary files, registry entries, startup menu items, and shared components on your system.

▫ **Remove it:** Complete this installation, and then use the Control Panel's Add/Remove Programs tool to remove the next product. Removing a product deletes files, registry entries, and startup menu items from your system.

More information about interactions between specific products is available at the Web site http://www.rational.com/sitewide/support/index.jtmpl. Click **Patches and Upgrades**, and then click **Upgrade Compatibility**.

13 The Confirmation dialog box displays the product features that will be installed.

14 The Error Summary dialog box displays errors from the first part of the software installation. If the installation is successful, you will not see this dialog box.

The Rational Software Setup program writes a log of installation activities. The log file is located in `<Install Path>\Rational\RSSetup\RSsetup.log`.

Possible Reboot Required

If files required for the installation are in use during the Rational Software Setup program, and if the program needs to install shared components on your system, the Setup program may require that you reboot your system. After rebooting, do the following:

1 Log on as the same administrator identity to complete the installation procedure. If you do not log on as the same administrator identity, the installation does not complete correctly. The installation process completes on your system.

2 Click **Finish** to exit from the Rational Software Setup program.

Configuring E-mail for Discussions

Use the Rational E-mail Reader application to configure e-mail for all discussion participants with a valid e-mail address in their RequisitePro user information. The Rational E-mail Reader application is included with your Rational Software installation at the following default location:

`c:\Program Files\Rational\common\mailreader.exe`

This application offers full e-mail integration with RequisitePro by associating an e-mail handler with each RequisitePro project. Initial discussion items and replies are automatically stored in the RequisitePro database and sent to discussion participants via e-mail. Participants can reply to the discussion items using their e-mail, as well as from within RequisitePro.

Caution: The E-mail Setup option on the RequisitePro Tools menu only configures notification e-mail for users who initiate a discussion or reply to a discussion from within the RequisitePro Discussion dialog box. To allow users to reply to discussions via e-mail, and to enable discussion e-mail for RequisiteWeb users, configure an e-mail handler for each project using the Rational E-mail Reader.

Discussion E-mail Configuration Requirements

- You must configure a unique e-mail address for each RequisitePro project

- **For RequisiteWeb:** You must run the Rational E-mail Reader on a <u>different</u> server than the Internet Information Services (IIS) server where RequisiteWeb is installed.

- **For RequisitePro and RequisiteWeb:** In order to enable e-mail for RequisiteWeb discussions, you must configure discussion e-mail using the **SMTP** protocol option in the Rational E-mail Reader. The MAPI protocol option is not supported for RequisitePro and RequisiteWeb.

- In order to complete the Rational E-mail Reader setup for SMTP protocol, you need the following information from your e-mail administrator:
  - SMTP Server name
  - POP3 Server name
  - E-mail address; one for each RequisitePro project
  - POP3 server login and password for the e-mail address

- Be sure to specify a **Log File Path** on the **Reader Information and Options** tab in the Rational E-mail Reader.

Note: Refer to the online help in the Rational E-mail Reader for more information.

Removing RequisitePro

This section describes how to remove RequisitePro from your system.

Preparing to Remove RequisitePro

Make sure that no one is using RequisitePro and any associated files. You will not be able to remove files that are in use.

To remove RequisitePro from a Windows NT system, you must have Windows NT administrator privileges on the local machine.

To Remove RequisitePro

Use the Windows **Add/Remove Programs** control panel to select and remove RequisitePro. The Rational Software Setup removes RequisitePro from your system.

Note: Removing RequisitePro does not remove RequisitePro project data from your system.

Note: If you are upgrading to a new version of RequisitePro that uses a different installation path and you choose to leave the previous directories intact, you should delete the .gid files from your former help directories; for example:
`\Rational\RequisitePro 4.5\help\reqpro.gid`
This prevents the new RequisitePro help from looking in the old directories for its contents information.

Configuring Enterprise Databases

3

This chapter describes how to configure Oracle® and Microsoft® SQL Server databases for RequisitePro projects. This information is also available in electronic format.

Note: The use of client/server databases offers significantly increased power and expandability to your organization's implementation of Rational RequisitePro. RequisitePro can be used with Oracle7, Oracle8, Microsoft SQL Server 7.0, and Microsoft Access databases. The RequisitePro Database Type Conversion Wizard enables you to move a Rational RequisitePro project from one database to another.

Database Setup

To create and access RequisitePro projects in Oracle or Microsoft SQL Server databases, you must configure an Oracle or SQL Server schema on your database server. Refer to Oracle or Microsoft documentation for information on installing Oracle or Microsoft SQL Server. To configure an Oracle or SQL Server database for RequisitePro projects, refer to the sections *Configuring Oracle for RequisitePro* on page 16 and *Configuring SQL Server for RequisitePro* on page 27.

Client Installation

Access to RequisitePro projects on Oracle and SQL Server databases requires the installation of RequisitePro on the client PC. If you are using an Oracle database, you must also install the Oracle client software on your PC.

See *System and Software Requirements* on page 2 for RequisitePro system requirements.

Installing Database Configuration Scripts

If you are responsible for setting up an Oracle or SQL Server database for RequisitePro, you should have installed the database configuration scripts with the **Custom/Full** installation option, described in *Installing RequisitePro with Rational Software Setup* on page 9.

If you selected the Oracle or SQL Server options, the program installed schema creation scripts in one or both of the following locations on your local machine:

```
C:\Program Files\Rational\RequisitePro\database\oracle
C:\Program Files\Rational\RequisitePro\database\sqlserver
```

If you did not install the scripts during the installation process, you can copy them to your local machine from the `RequisitePro/database` directory on your installation media.

Configuring Oracle for RequisitePro

Purpose

This section provides information about configuring Rational RequisitePro for use with an Oracle database server. It includes:

- database management information for setting up an Oracle schema to accommodate Requisite projects,

- instructions for accessing an Oracle host from the client PC using Oracle's SQL*Net or Net8 Easy Configuration tool, and

- a procedure for creating a RequisitePro project in the Oracle database.

These instructions are intended for use by Oracle database administrators, system administrators, and RequisitePro project administrators.

For the most current information related to Oracle database configuration, refer to the "Oracle Database Configuration for RequisitePro" document that is, by default, at the following location on your system after installation:
`C:\Program Files\Rational\RequisitePro\help\OracleSetup.html`

Introduction

To create and access RequisitePro projects in the Oracle database, follow the instructions in this document for enabling your Oracle database compatibility. RequisitePro supports multiple projects within a single Oracle schema. Refer to *Creating a Project in Oracle* on page 24 for instructions on adding an Oracle database project within RequisitePro. Use the same schema name for each of your RequisitePro projects.

Prerequisites

This document assumes that you have Oracle installed on your LAN and the Oracle client software installed on your PC. Refer to the Oracle documentation for all questions regarding that product.

The following installation and configuration tasks must be accomplished prior to performing the RequisitePro/Oracle integration outlined in this document.

Oracle Database Administration

Notice to database administrator:
For proper execution of the RequisitePro application, be sure to set the initialization parameter, OPEN_CURSORS, to at least 110.

In order to configure access to Oracle for RequisitePro projects, the database administrator must establish the following:

- Oracle database server name (TCP/IP Host Name)
- Oracle database alias or service name
- Oracle schema name for storing RequisitePro projects (see procedure below)
- your user ID for logging on to the Oracle database
- your user password for logging on to the Oracle database

The following sections provide instructions for configuring the last three of these items.

Platform Compatibility

RequisitePro database implementation is compatible with all Oracle-supported platforms.

Creating an Oracle Schema for RequisitePro

Oracle database administration allows the creation of multiple schemas within your Oracle database instance. **Use the scripts listed below to create a RequisitePro user and schema** within Oracle for storing your projects. The RequisitePro scripts are designed to initially allocate disk space for the various database tables and indexes that are used by RequisitePro, based on the following approximations:

- 25 projects
- 250 documents (10 per project)
- 125 document types (5 per project)
- 125 requirement types (5 per project)
- 1,250 user defined attributes (10 per requirement type)
- 125 user groups (5 per project)
- 100 users
- 12,500 requirements (500 per project)

▪ 12,500 discussions (500 per project)

The scripts simply provide an initial size for the RequisitePro schema. They in no way imply any constraints on size or number of projects.

Extents are set to the same size as the initial allocations. They define additional table space that Oracle will allocate if the original allocation becomes insufficient.

As database administrator, you can customize the scripts to adjust the table space allocations for tables and indexes in order to accommodate your organization's intended use of RequisitePro. See the section *Editing Scripts* on page 19.

Schema Creation Scripts

The following scripts are used for creating a RequisitePro schema within your Oracle database. They can be run automatically by executing the main script, CREATE_REQPRO, as described in the procedure *Creating a Schema* on page 21, or you can run them individually as needed.

CREATE_REQPRO. Establishes a log that can be used to review the results of running the script and runs the other scripts, listed below.

TABLESPACE. Creates table spaces for data and indexes. Creates disk files to support these table spaces.

CREATE_USER. Creates the default RequisitePro user (REQPRO) and password (REQPRO) and connects to the database with that user ID.

TABLES. Creates tables for the RequisitePro database.

PRIMARY. Creates primary keys for each table in RequisitePro.

INDEXES. Creates indexes for the RequisitePro database.

FOREIGN. Creates foreign key relationships between tables.

FUNCTIONS. Creates customer-defined functions for use within RequisitePro.

SEQUENCE. Creates sequences and triggers for auto-sequencing primary keys.

PROCEDURES. Creates stored procedures for use within RequisitePro.

DATA. Inserts data into the RqKeys and RqRequisite tables.

GRANT_ROLE. Creates a user role with access to the RequisitePro schema objects.

Copying the RequisitePro Scripts

If you did not install the Oracle database creation scripts as described in *Installing RequisitePro with Rational Software Setup* on page 9, you can repeat the Custom/Full installation procedure or copy the Oracle scripts from the Rational Windows Solutions media in the following location:

CD-ROM:\\RequisitePro\database\Oracle\

After installation, the scripts are located, by default, at the following location on your local machine:

C:\Program Files\Rational\RequisitePro\database\oracle

Copy the scripts to a subdirectory on your Oracle database server. We suggest that you create a "sql" directory below the home directory on the server.

Note: If your database server is running on an international operating system, be sure that the path to these scripts does not include folders with double-byte character names.

Editing Scripts

All modifications described below are made in the CREATE_REQPRO script, unless otherwise indicated.

Modifying the User Name and Password (Optional)

If you want to create the RequisitePro schema with a different entry than the default user name and password values of "ReqPro", modify the following entries:

```
DEFINE USR=reqpro
DEFINE PWD=reqpro
```

Specifying the Path for the Schema Scripts

Edit the `DEFINE PATH` entry to indicate the full path where the RequisitePro SQL scripts are located. The suggested path (from "Copying the RequisitePro Scripts," above) is:

```
DEFINE PATH="$HOME/sql/"
```

Note: If your environment limits your path to a maximum 8-character name for directories, be sure to reflect this format in your entry.

Indicating Data and Index Files Directory

Edit the `DEFINE ORACLE_DATA` entry to indicate the path and directory where the data file for the data table space will be created:

```
DEFINE ORACLE_DATA=<full path>/ORACLE_DATA/
```

Edit the DEFINE ORACLE_INDEX entry to indicate the path and directory where the data file for the index table space will be created:

```
DEFINE ORACLE_INDEX=<full path>/ORACLE_INDEX/
```

Specifying a Temporary Tablespace

Edit the DEFINE TEMP entry in the CREATE_REQPRO script to assign temporary tablespace for storing temporary objects for the user's operations.

```
DEFINE TEMP=TEMP
```

Make sure that the value for this entry is a valid, existing tablespace in your Oracle database. Some versions of Oracle use "TEMPORARY_DATA" rather than "TEMP." Your installation of Oracle may contain a custom name for the temporary tablespace.

Customizing Disk Space Allocation for Database Objects

The schema creation scripts are designed to allocate disk space for the various database tables and indexes that are used by an average set of RequisitePro projects, as described in *Creating an Oracle Schema for RequisitePro* on page 17.

If you anticipate a much larger or smaller requirement for your organization's use of RequisitePro, you can customize the disk space allocation specified in the CREATE_REQPRO script to accommodate your projected capacity.

Edit the following sizing variables:

```
SMALL    = 10K
MEDIUM   = 100K
LARGE    = 1000K
REQS     = 6000K
REQHIST  = 75000K
```

Note: The last two variables, REQS and REQHIST, are used for the requirements (RqRequirements) and requirement history (RqRequirementHistory) tables, respectively.

Edit the DEFINE DATA_SIZE and DEFINE INDEX_SIZE entries to reflect the change in the total size of the database caused by your edits to the sizing variables.

Modifying the Limits of the VARCHAR2 Data Type

RequisitePro uses the VARCHAR2 data type to store searchable text for requirement text, revision history reasons, and textual attribute values.

Although Oracle7 supports a maximum of 2,000 characters in the VARCHAR2 data type, Oracle8 supports up to 4,000, allowing you to expand the constraints on the size of the searchable text from 2,000 to 4,000 characters.

The RequisitePro Oracle scripts set the limit on this data type to 2000 characters to accommodate both Oracle7 and Oracle8 databases. To modify this limit for Oracle8 databases, increase the MAX_VARCHAR value in the CREATE_REQPRO script from 2000 to a maximum of 4000.

Creating a Schema

The Oracle database administrator performs the following procedure to create a RequisitePro schema in Oracle:

1   Edit the CREATE_REQPRO script, as described above in the section *Editing Scripts* on page 19.

2   On the Oracle database server, log on to SQL*Plus with system administrator permissions.

    Note: If you run SQL*Plus from a remote client, you need to edit the RequisitePro CREATE_USER script. Change the entry `connect &3/&4` to the following:
    ```
    connect &3/&4@<target Oracle database server alias>
    ```

3   Run the CREATE_REQPRO script using the command:
    ```
    @<setup directory>\CREATE_REQPRO
    ```

This script runs the schema creation scripts. A message appears upon successful completion of the schema creation. If errors occur or the completion message does not appear, review the log CREATE_REQPRO.LOG.

User ID for Accessing Oracle Database

All RequisitePro projects should access the Oracle database using the same user ID, which was created during the schema creation process, described above. The initial user name and password created by the script are "reqpro" and "reqpro", unless you modified the CREATE_REQPRO script, as described in *Editing Scripts* on page 19. You can also change the password using your Oracle database utilities.

Each user does not need a separate Oracle account because RequisitePro uses its own user and user group tables to control access to a project.

Using Multiple Projects within an Oracle Database

RequisitePro supports multiple projects within a single Oracle schema. Refer to the procedure *Creating a Project in Oracle* on page 24 for instructions on adding an Oracle database project within RequisitePro. Use the same schema name for each of your RequisitePro projects.

Connecting Projects Across Databases

Perform the following steps to enable cross-project traceability between projects in distributed Oracle databases. Refer to the following sections for details.

- Creating a reference to the remote database instance

- Creating a database link to the remote database

- Defining database aliases on each RequisitePro client

Creating a reference to the remote database instance

In order to run traceability queries between projects in distributed Oracle databases, you need to define a reference in each database instance that refers to the remote database instances. Edit the tnsnames.ora file, located on the Oracle server, to define the name, host, port, and protocol of the remote service.

The following example shows the syntax for defining the database instance "server02" as a remote database server to "server01" in the tnsnames.ora file:

```
Server02.world =
  (DESCRIPTION =
    (ADDRESS_LIST =
      (ADDRESS =
          (COMMUNITY = tcp.world)
          (PROTOCOL = TCP)
          (Host = server02)
          (Port = 1521)))
    (CONNECT_DATA = (SID = ORCL)))
```

In similar fashion, the "server02" database instance needs an entry to define the remote "server01" database instance:

```
Server01.world =
  (DESCRIPTION =
    (ADDRESS_LIST =
      (ADDRESS =
          (COMMUNITY = tcp.world)
          (PROTOCOL = TCP)
          (Host = server01)
          (Port = 1521)))
    (CONNECT_DATA = (SID = ORCL)))
```

Note: This feature was tested using TNSNAMES for service name resolution. Use of Oracle Names Server or any other name server mechanism requires a different setup.

Creating a database link to the remote database

Next, create a database link to each remote database in each database instance using a SQL utility. The link should be defined under the user account that owns the RequisitePro schema. The following example shows the required syntax for linking to "server02" from "server01":

```
CREATE DATABASE LINK server02.world
CONNECT TO reqpro IDENTIFIED BY reqpro
USING 'server02.world';
```

A similar statement should be executed on the server02 database instance in order to define a link to server01.

If the `db_name.db_domain` does not result in a unique name for each database for which a link is required, use the `@connection_qualifier` syntax to create a unique name.

This naming convention will work regardless of the setting of the `global_names` parameter in the `initorcl.ora` file.

Defining database aliases on each RequisitePro client

Define SQL*Net database aliases or Net8 service names (resulting in local tnsnames.ora file entries) on each RequisitePro client machine (or shared centrally on a network) for each database instance. The database alias or service name on the client MUST match the database link you defined in the previous step for RequisitePro cross-project traceability to function correctly.

For more information on configuring client PCs for use with a Rational RequisitePro Oracle database, refer to the following section.

Setting Up PCs for Oracle Access

Use the Oracle SQL*Net or Net8 Easy Configuration tool to configure access from your client PC to the Oracle database server. If you plan to share projects with other users, be sure to use a consistent database alias or service name, as determined by your database administrator.

Creating a Project in Oracle

Note: To convert a project from an existing Microsoft Access database to an Oracle database, use the Database Type Conversion Wizard. Open the Database Type Conversion Wizard in Windows Explorer. The executable, `rqdbtypewiz.exe`, is located in the directory: `\Program Files\Rational\RequisitePro\bin\`

Perform the following steps to create a RequisitePro project that uses the Oracle database server for storing the RequisitePro project database.

In order for you to configure your access to Oracle from RequisitePro, the database administrator must provide the following information:

- Oracle database server name (TCP/IP Host Name)
- Oracle database alias or service name
- Oracle schema name for storing RequisitePro projects (see procedure below)
- your user ID for logging on to the Oracle database
- your user password for logging on to the Oracle database

1 In RequisitePro on the **Project** menu, click **New**. The Create RequisitePro Project dialog box appears.

2 Select a project template.

   Note: The details in the lower part of the dialog box provide an explanation as you select each template.

3 Click **Create**. The Rational RequisitePro Project Properties dialog box appears.
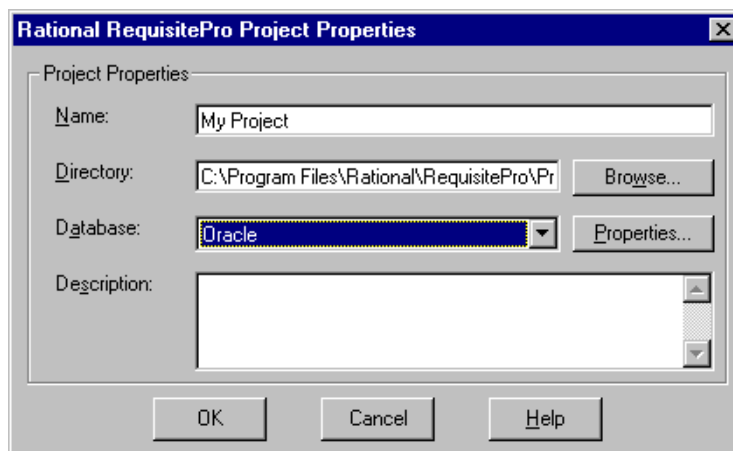
4 Enter a project name and directory location.

5 At the **Database** field, select **Oracle** from the drop-down list and click the **Properties** button. The Database Properties dialog box appears.

6 Click the **Configure** button. The Microsoft ODBC for Oracle Setup dialog box appears.

Microsoft ODBC for Oracle Setup	
Data Source Name: Temp ReqPro Data Source	OK
Description: For configuration purposes only	Cancel
User Name:	Help
Server:	Options >>
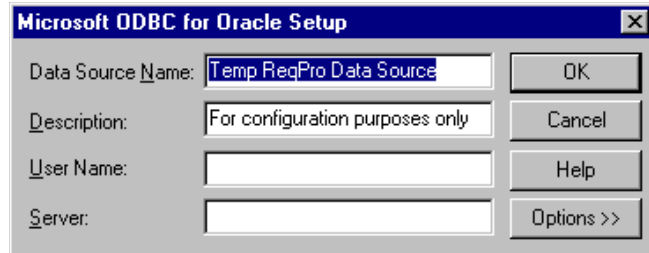
7 Do <u>not</u> modify the default entries in the **Data Source Name** and **Description** fields.

8 Type your **User Name** for logging into the Oracle database, as provided by your Oracle database administrator. By default, the user name is "reqpro".

9 For the **Server** field, type the alias or service name you entered when configuring your PC for access to the Oracle database.

Note: This database alias or service name must be identical when configuring all PCs that will access shared RequisitePro projects in the Oracle database.

10 Click **OK**. The Database Properties dialog box appears.

11 Click the **Account Info** button. The Database Account Info dialog box appears.

Database Account Info	
User ID: reqpro	
Password:	
Verify Password:	
Schema:	
OK	Cancel	Help
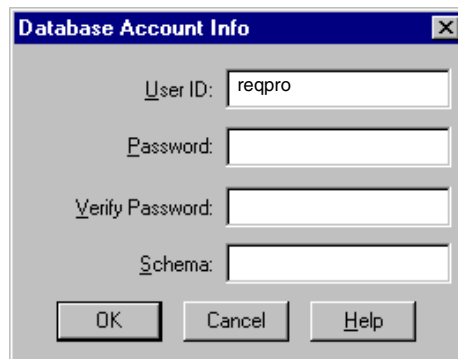
12 Do <u>not</u> modify the User ID field. This should match the user name you entered in the previous dialog box.

13 Type your user password for logging into the Oracle server. This should be supplied to you by your Oracle database administrator.

14 Retype your password in the **Verify Password** field.

15 In the **Schema** field, type the name of the Oracle schema that your Oracle database administrator has established for storing RequisitePro data in Oracle.

16 Click **OK** to close the Database Account Info dialog box. Click **OK** to close the Database Properties dialog.

17 Finish creating your project, then click **OK** to close the Project dialog box.

Archiving and Baselining an Oracle Project

Refer to the topics "Archiving enterprise database projects" and "Baselining projects with Unified Change Management" in the RequisitePro online help. These help topics are also available in Let's Go RequisitePro. Click the Project Administration Tips icon and select the appropriate link.

Configuring SQL Server for RequisitePro

Purpose

This section provides information about configuring Rational RequisitePro for use with Microsoft SQL Server. The section includes:

- database management information for setting up a SQL Server schema to accommodate RequisitePro projects

- a procedure for creating a RequisitePro project in the SQL Server database

This document is intended for use by SQL Server database administrators, system administrators, and RequisitePro project administrators.

For the most current information related to SQL Server database configuration, refer to the document "SQL Server Database Configuration for RequisitePro" that is, by default, at the following location on your system after installation: C:\Program Files\Rational\RequisitePro\help\SQLsetup.html

Introduction

To create and access RequisitePro projects in the SQL Server database, follow the instructions in this section for enabling your SQL Server database compatibility. RequisitePro supports multiple projects within a single SQL Server schema. Refer to the procedure *Creating a Project in SQL Server* on page 31 for instructions on adding an SQL Server database project within RequisitePro. Use the same schema name for each of your RequisitePro projects.

Prerequisites

This document assumes that you have SQL Server, Version 7.0, installed on your LAN. Refer to the SQL Server documentation for all questions regarding that product.

Note: If you have an existing RequisitePro database in SQL Server, and your SQL Server software has been upgraded to version 7.0 from a previous version, then you must run the following stored procedure in SQL Server to set the database compatibility level to SQL Server 7.0:

```
sp_dbcmptlevel <database name>, 70
```

for example:

```
sp_dbcmptlevel RequisitePro, 70
```

The above procedure is required to prevent SQL Server Syntax Errors in RequisitePro.

The following installation and configuration tasks need to be accomplished prior to performing the RequisitePro/SQL Server integration outlined in this document.

SQL Server Database Administration

Prior to configuring your access to SQL Server from RequisitePro, the database administrator must establish the following:

- SQL Server machine name (TCP/IP Host Name)
- SQL Server default database for RequisitePro projects, such as "RequisitePro"
- a user ID for logging on to the SQL Server database, such as "ReqPro"
- a user password for logging on to the SQL Server database, such as "reqpro"

The following sections provide instructions for configuring the last three of these items.

Platform Compatibility

RequisitePro database implementation is compatible with all Microsoft SQL Server-supported platforms.

Creating a SQL Server Database for RequisitePro

Use the following instructions to create a SQL Server database and schema for RequisitePro projects. The initial database size is based on the following approximations for your use of RequisitePro:

- 25 projects
- 250 documents (10 per project)
- 125 document types (5 per project)
- 125 requirement types (5 per project)
- 1,250 user-defined attributes (10 per requirement type)
- 125 user groups (5 per project)
- 100 users
- 12,500 requirements (500 per project)
- 12,500 discussions (500 per project)

To create a database in **SQL Server 7.0**, do the following:

1   Enter a name for the RequisitePro database. The database has an .MDF extension. The recommended database name is "RequisitePro."

    Note: If you use a different database name, you will need to modify the database configuration scripts to reflect the actual name.

2   Set the initial size of the database to 150 MB.

3   Set the initial size of the transaction log file (.LDF) to one third the size of the database (in this case, 50 MB).

Schema Creation Scripts

The scripts listed below are used for creating a RequisitePro schema within your SQL Server database.

- **Login and User**. Creates a default RequisitePro login and user. For more information refer to the section below, "Default Login and User."

- **Tables and Indexes**. Creates the tables and indexes required by RequisitePro.

- **Triggers.** Creates triggers that enforce cascading deletes.

- **Initial Data**. Inserts data required by RequisitePro when it first runs.

Copying the RequisitePro Scripts

If you did not install the SQL Server database creation scripts as described in *Installing RequisitePro with Rational Software Setup* on page 9, you can repeat the Custom/Full installation procedure or copy the SQL Server scripts from the Rational Windows Solutions media in the following location:

    CD-ROM:\\RequisitePro\database\SQLserver\

After installation, the scripts are located, by default, at the following location on your local machine:

    C:\Program Files\Rational\RequisitePro\database\sqlserver

Copy the scripts to a subdirectory on your SQL Server database server. We suggest that you create a "sql" directory below the home directory on the server.

Running Schema Creation Scripts

The scripts listed below are used for creating a RequisitePro schema within your SQL Server database. Run the scripts in the sequence presented below. Run the scripts individually using the **SQL Server Query Analyzer**. Be sure to select the RequisitePro database in the DB drop-down list when running the scripts.

1 login and user.sql

2 tables and indexes.sql

3 triggers.sql

4 initial data.sql

Default Login and User

The schema creation scripts, described above, create default user information for accessing and creating projects in SQL Server. The user name also establishes the ownership and name of the schema (by default, "reqpro"). The default user permissions are required for use with RequisitePro.

Note: If you modify the **login and user.sql** script to use a different login and user name, you will need to modify subsequent scripts.

The scripts create the following default user information:

User	Login	Password
ReqPro	ReqPro	reqpro

The ReqPro user is assigned the following statement permissions in SQL Server:

User	Statement Permissions
ReqPro	Create Default, Create Procedure, Create Rule, Create Table, Create View

As the owner of the RequisitePro database objects, the ReqPro user is automatically assigned the following database permissions in SQL Server:

User	Database Permissions
ReqPro	Select, Insert, Update, Delete, DRI on all Tables and Views

Creating a Project in SQL Server

Note: To convert a project from an existing Microsoft Access database to an Oracle database, use the Database Type Conversion Wizard. Open the Database Type Conversion Wizard in Windows Explorer. The executable, `rqdbtypewiz.exe`, is located in the directory: `\Program Files\Rational\RequisitePro\bin\`

Perform the following steps to create a RequisitePro project that uses the SQL Server for the project database.

In order to configure access to SQL Server from RequisitePro, the database administrator must provide you with the following information:

- SQL Server machine name (TCP/IP Host Name)

- SQL Server default database for RequisitePro projects, such as "RequisitePro"

- a user ID for logging on to the SQL Server database, such as "ReqPro"

- a user password for logging on to the SQL Server database, such as "reqpro"

1 Start RequisitePro. In RequisitePro on the **Project** menu, click **New**. The Create RequisitePro Project dialog box appears.

2 Select a project template.

Note: The details in the lower part of the dialog box provide an explanation as you select each template.

3 Click **Create**. The Rational RequisitePro Project Properties dialog box appears.
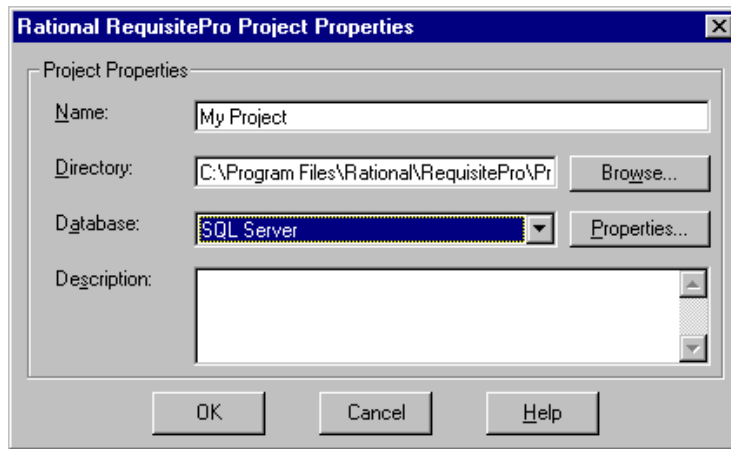
4 Enter a project name and directory location.

5 At the **Database** field, select **SQL Server** from the drop-down list.

6 Click the **Properties** button. The Database Properties dialog box appears.
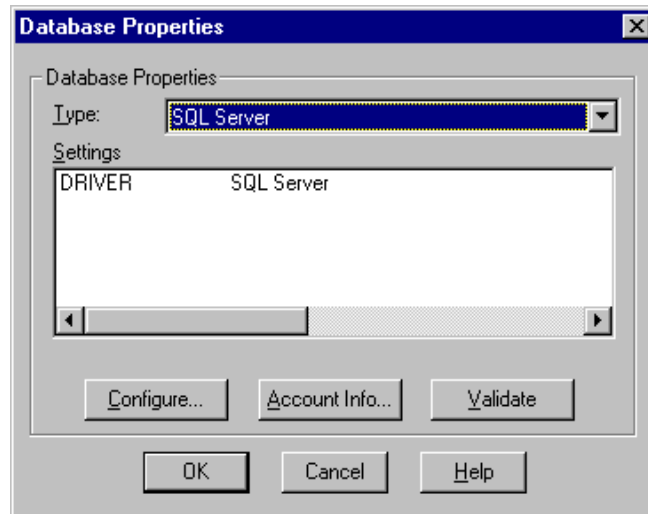
7 At the Database Properties dialog box, click the **Configure** button. The "Create a New Data Source to SQL Server" dialog box appears.
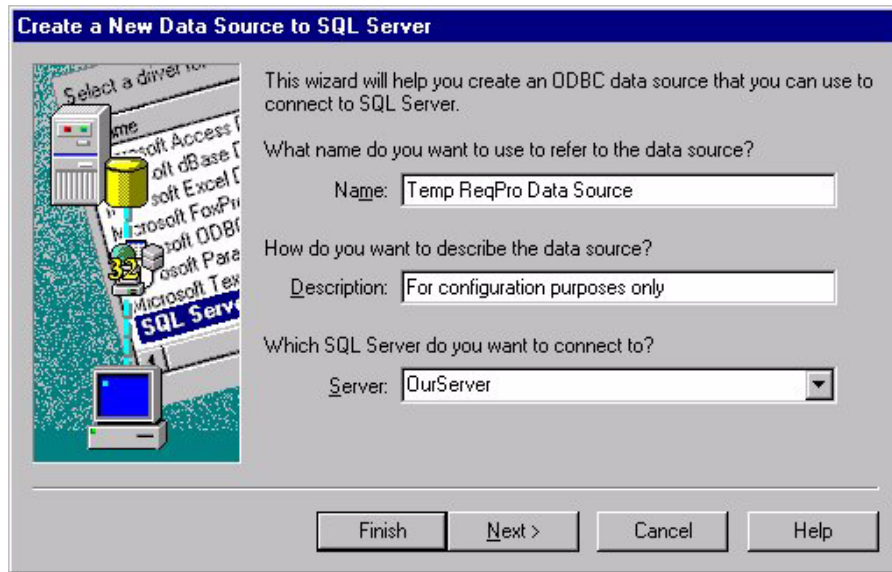
8 Do <u>not</u> modify the data source **Name** or **Description** fields. In the **Server** field, type the name of the SQL Server, supplied by your database administrator.

9 Click **Next**. The second data source screen appears.
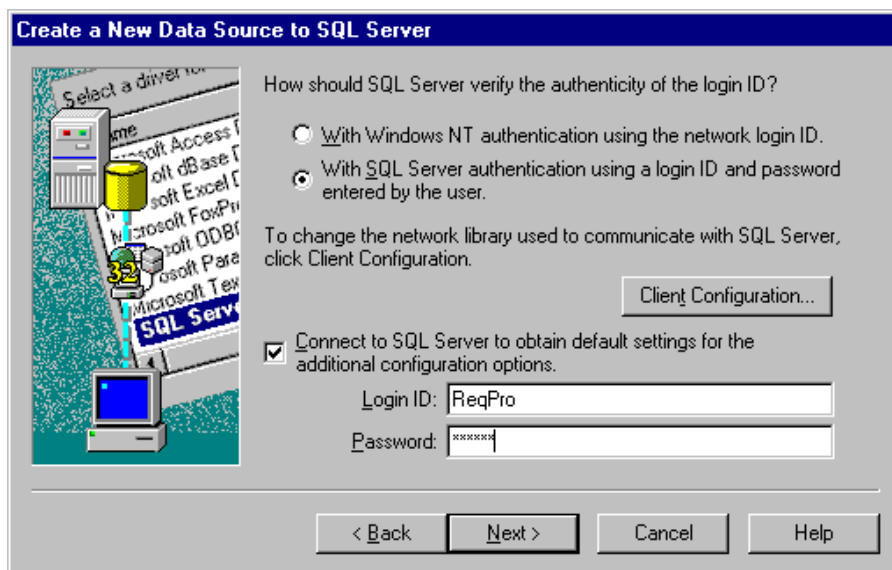
10 Select the option **With SQL Server authentication using a login ID and password entered by the user.**

> **Note:** RequisitePro does not support Windows NT authentication.

11 Be sure the check box **Connect to SQL Server to obtain default settings for the additional configuration options** is checked.

12 Type the **login ID** and **password** supplied by your database administrator, such as "ReqPro" and "reqpro." Click **Next**.

13 Click the check box **Change the default database to** and select a database name supplied by your database administrator, such as "RequisitePro." Click **Next**.

14 Click **Next** to accept the default language, character, and regional settings. The use of log files, shown on the following screen, is optional.

> **Note:** Do <u>not</u> select the check box **Change the language of SQL Server system messages to...** Selecting this check box prevents users from opening the project after its initial creation.

15 Click **Finish**. The ODBC Microsoft SQL Server Setup dialog box appears.

16 Click the **Test Data Source** button. The SQL Server ODBC Data Source Test dialog box appears.

17 Click **OK**. The ODBC Microsoft SQL Server Setup dialog box appears.

18 Click **OK**. You return to the Database Properties dialog box.

19 At the Database Properties dialog box, click the **Account Info** button. The Database Account Info dialog box appears.
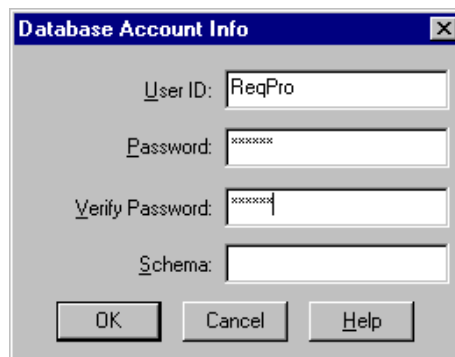
20 Type the **User ID** and **Password**, supplied by your database administrator for accessing the SQL Server database, such as "ReqPro" and "reqpro."

21 Retype your password in the **Verify Password** field.

22 In the **Schema** field, type the user name of the owner of the RequisitePro database tables, supplied by your database administrator, such as "ReqPro."

23 Click **OK** to close the Database Account Info dialog box. Click **OK** to close the Database Properties dialog box.

24 Finish creating your project, then click **OK** to close the Project dialog box.

Archiving and Baselining an SQL Server Project

Refer to the topics "Archiving enterprise database projects" and "Baselining projects with Unified Change Management" in the RequisitePro online help. These help topics are also available in Let's Go RequisitePro. Click the Project Administration Tips icon and select the appropriate link.

Installing and Configuring Rational RequisiteWeb

4

Introduction

Rational RequisiteWeb allows clients to read, create, and modify Rational RequisitePro project requirements across an intranet. By utilizing browsers – Netscape Navigator or Microsoft Internet Explorer – RequisiteWeb provides platform-independent, thin-client access to RequisitePro project data.

This chapter contains the following sections:

- RequisiteWeb System Requirements

- Key Components Overview

- Single-Server Configuration Overview

- Dual-Server Configuration Overview

- Configuring the RequisiteWeb Requirements Server

- Setting Up the Single-Server Configuration

- Setting Up the Dual-Server Configuration

- Managing RequisitePro Projects for RequisiteWeb

- Configuring E-mail for Discussions

- Starting RequisiteWeb

- Removing RequisiteWeb

For the most current information on RequisiteWeb, including installation, configuration, and known issues, refer to the *RequisiteWeb Installation and Configuration* document that is on the Rational Solutions for Windows CD at: \RequisitePro\ReqWeb\reqwebsetup.html
It is also located, by default, in your RequisiteWeb installation at: C:\Program Files\Rational\RequisitePro\ReqWeb\reqwebsetup.html

The *RequisiteWeb Installation and Configuration* document is also available from the online Release Notes in RequisitePro.

RequisiteWeb System Requirements

Server Requirements

The following table summarizes the requirements for the RequisiteWeb server.

Table 8   RequisiteWeb Server Requirements

Item	Web Server	Requirements Server or Single Server
Operating System/	Sun Microsystems Solaris 8 Red Hat Linux	One of the following: ▪ Microsoft Windows 2000 Advanced Server ▪ NT Server 4.0, Service Pack 6A or later; NT 4.0 Option Pack
HTTP Server	Apache Web Server	One of the following: ▪ Internet Information Server (IIS) 4.0 and Microsoft Transaction Server (MTS) 2.0 ▪ Internet Information Services (IIS) 5.0
Processor	Intel processor: 400 MHz or greater For the Solaris OS: Sun SPARCstation	400 MHz or greater
Memory	128 MB	128 MB. For projects with more than 10,000 requirements or Web sites with more than 10 concurrent users, 256 MB or more is recommended.
Disk space	JSPs, Web DLLs, bitmaps -- 2 MB	RequisiteWeb (includes system DLLs) -- 40 MB

Table 8   RequisiteWeb Server Requirements

Other products	▪ Sun Microsystems Java Development Kit (JDK 1.2.2) ▪ ANSI-C compiler such as GNU's gcc package	▪ WinZip utility. ▪ Microsoft Word 2000 **Note:** Microsoft Word licenses are required for all RequisiteWeb end users. ▪ Oracle, version 7.3 or greater, client software (for accessing projects in an Oracle database). ▪ Microsoft Internet Explorer 5, or Internet Explorer 4 with the XML parser available at <u>http://msdn.microsoft.com/ downloads/tools/xmlparser/ xmldl.asp</u> ▪ Sun Microsystems Java Development Kit (JDK 1.2.2)

RequisiteWeb Security Requirements

After you have installed RequisiteWeb, you may need to alter security permissions on your server for reasons unrelated to RequisiteWeb. Use caution when modifying permissions on RequisiteWeb-related folders. For more information, see *Editing the RequisiteWeb Configuration File* on page 62 and *Configuring the RequisiteWeb Requirements Server* on page 44.

Client Requirements

To access RequisiteWeb from client machines, you must install one of the following Web browsers on the client system. No additional client installation is required for use of RequisiteWeb.

▪ Microsoft Internet Explorer 4.X or 5.X

▪ Netscape Navigator 4.X (Win 95/98/NT, UNIX)
As of this printing, Netscape 6 Preview Release has not been fully qualified for compatibility with RequisiteWeb.

Note: For proper RequisiteWeb operation, you must set your browser to allow cookies.

Key Components Overview

The following sections describe key components in the RequisiteWeb installation. They include components on both the Web server and the Requirements server.

Java Development Kit

The Sun Microsystems Java Development Kit (JDK) is a development and deployment environment that includes key components for your RequisiteWeb implementation. The Java Runtime Environment (JRE) contain binary libraries required for the execution of Java scripts and servlets. The Java Virtual Machine (JVM) interprets and implements the Java programming language in the Web server configuration.

Tomcat Servlet Engine

Tomcat is an implementation of the Java Servlet 2.2 and Java Server Pages (JSP) 1.2 Specifications. Tomcat is produced by the Jakarta Project, which is composed of members of the Apache Jserv Project, engineers from major corporations such as Sun and IBM, newer companies like Exoffice, and individual developers.

Tomcat is a servlet container with a JSP environment. A servlet container is a runtime shell that manages and invokes servlets on behalf of users. As an in-process servlet container, Tomcat is a combination of a Web server plugin and a Java container implementation. The Web server plugin opens a Java Virtual Machine (JVM) inside the Web server's address space and lets the Java container run in it. If there is a request to execute a servlet, the plugin takes control of the request and passes it to the Java container.

Note: This document assumes that you have not installed Tomcat on your server. If you are already running Tomcat, verify that you have version 3.1. If this is the case, note the path of your current Tomcat installation, and skip the Tomcat installation procedure in this document.

Microsoft Word 2000

In order to access RequisitePro requirements documents in RequisiteWeb, Microsoft Word 2000 must be installed on the single RequisiteWeb Server, as described in Single-Server Configuration Overview; or, when configuring an Apache Web server, Word must be installed on the Requirements server, as described in *Dual-Server Configuration Overview* on page 42. For Microsoft Word version information, see *RequisiteWeb System Requirements* on page 38.

Single-Server Configuration Overview

When running Microsoft Internet Information Server (IIS), version 4 or 5, as your Web server, you can configure your entire RequisiteWeb implementation on a single server. This implementation requires the use of Windows NT 4.0 or Windows 2000 Server as your operating system.

The single RequisiteWeb Requirements server configuration requires the installation of the components described in *Key Components Overview* on page 40. In addition, it includes the RequisiteWeb components: RequisitePro Extensibility Interface (RPX), RequisiteWeb JSP and HTML files, a RequisitePro project catalog file, Microsoft Word, and access to a project database. The following figure shows the single-server configuration:
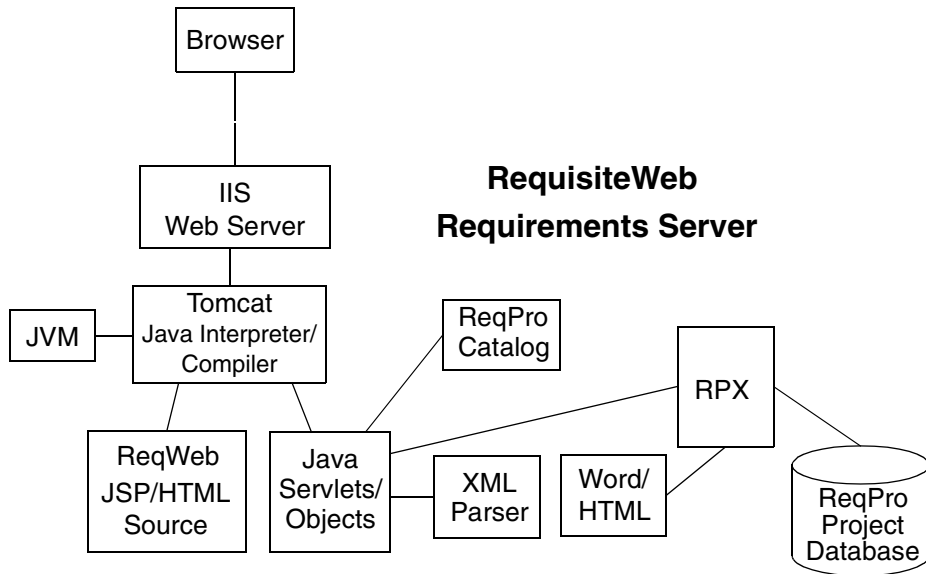
Note: The single-server configuration cannot be implemented on a Primary Domain Controller or Backup Domain Controller, because RequisiteWeb uses a local user to generate documents.

For instructions on configuring the single server, see *Setting Up the Single-Server Configuration* on page 54.

Dual-Server Configuration Overview

When using Linux or Sun Microsystems Solaris for the operating system on your Web server, you must configure RequisiteWeb on two servers:

- The **Web server** hosts the primary login URL for RequisitePro, all Java Server pages, and the HTML pages that present the user interface for RequisiteWeb. It includes utilities for compiling Java objects and routing information to and from the Requirements server. This server can run on Sun Microsystems Solaris OS, Red Hat Linux and use the Apache Web server; alternatively, this server can run Microsoft NT or Windows 2000 Server and use Microsoft Internet Information Server (IIS), version 4 or 5.

  Note: When running IIS, you can also choose to configure RequisiteWeb on a single server, as described in *Single-Server Configuration Overview* on page 41.

- The **Requirements server** hosts the RequisitePro Extensibility Interface, the RequisitePro project catalog, Microsoft Word, and processing software for passing information to and from the Web Server and the RequisitePro project database. This server runs on Microsoft NT or Windows 2000 and uses Microsoft Distributed COM (DCOM). RequisiteWeb offers secure access to RequisitePro project information; access to specific project folders should be enabled on NTFS file systems.

  Note: The Requirements server cannot be implemented on a Primary Domain Controller or Backup Domain Controller, because RequisiteWeb uses a local user to generate documents.

The following diagram presents key components of the RequisiteWeb installation on two servers:
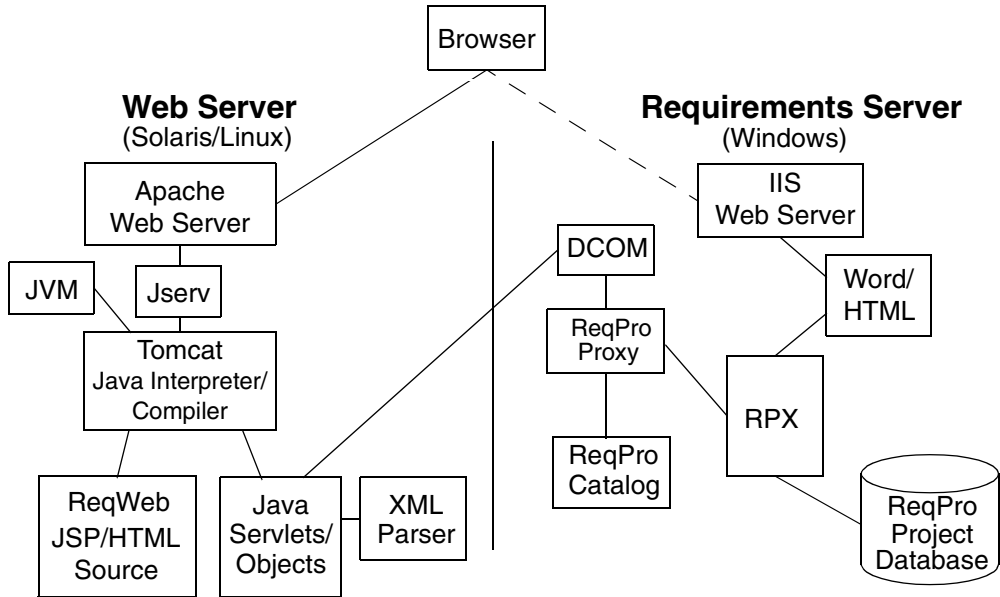
For instructions on implementing the dual-server configuration, see *Setting Up the Dual-Server Configuration* on page 65.

RequisitePro Proxy

RequisitePro Proxy is an executable file that is installed on the Requirements server with the other RequisiteWeb components. It receives requests from DCOM and instantiates the required RequisiteWeb component, such as the Requisite Extensibility Interface (RPX), the RequisitePro project catalog, and Microsoft Word. Proxy passes requests to the active component and processes the returned data collection, passing the data back to DCOM.

You will configure the Proxy Connector class (RqProxy.Connector) in Microsoft DCOM to assign proper permissions to the RequisiteWeb user (ReqWeb_RPXUser).

Configuring the RequisiteWeb Requirements Server

Note: Unless otherwise indicated, this entire section applies to both single-server and dual-server RequisiteWeb configurations.

These instructions assume that you have installed the Microsoft Internet Information Server (IIS) on your RequisiteWeb Requirements server and that it is running. For more information on IIS, see Microsoft Servers at <u>www.microsoft.com/servers</u>.

This section describes installation and configuration of the RequisiteWeb components on the Requirements server. Details for the following procedures are provided:

- Installing RequisiteWeb components from the *Rational Software Solutions* CD.
- Creating a domain user and a local user with administrative permissions.
- Assigning DCOM configuration permissions for RequisiteWeb components and Microsoft Word.
- Creating a document directory.
- Installing Oracle client software.

Installing RequisiteWeb on the Requirements Server

Note: For current RequisiteWeb users, be sure to uninstall any earlier version of RequisiteWeb prior to installing the current release of RequisiteWeb on your server. Do not remove your ReqWeb virtual directory; instead, redirect it to the components in your new RequisiteWeb installation. Refer to *Removing RequisiteWeb* on page 78 for specific instructions. Be sure to retain your existing catalog.txt file.

Note: To install RequisiteWeb, you must have a Rational license key. You can acquire and import the Rational license keys before or after installing Rational RequisitePro. See the *Administering Licenses for Rational Software* manual for more information about licenses, including the procedure for obtaining a license key. If you install RequisiteWeb as part of a Rational Suite, you must select the appropriate Suite license usage order. In the Rational License Administrator, click **Settings** > **License Usage Mapper**.

1 Log on to the RequisiteWeb Requirements server as an administrator.

2 Insert the Rational Solutions for Windows CD into your system's CD drive. The setup program starts automatically. If autorun is disabled on your system, click **Start > Run**. Using the drive letter of your CD-ROM drive, enter `drive:\SETUP.EXE`.

3 The Rational Software Setup wizard guides you through the software installation. On each screen, click the **Next** button to proceed to the next screen. The Rational Software Setup program writes a log of the installation activities. The log file is located, by default, in C:\Program Files\Rational\RSSetup\RSSetup.log

4 At the Choose Product screen, select **Rational RequisitePro** on the drop-down list.

5 At the Setup Configuration screen, click **Custom/Full.**

   Note: If your database server is running on an international operating system, be sure that the install path does not include folders with double-byte character names.

6 At the Choose Features screen, select the **Web Server Components** check box.

7 Select or clear the following optional check boxes:

   ▫ If you plan to use this machine for creating and managing RequisitePro projects, leave the **RequisitePro** check box selected. If you plan to use this machine only for hosting RequisiteWeb, you can clear it.

   ▫ Leave the **Rational Synchronizer** check box unmarked.

   ▫ The **Sample Projects** option, under the expanded RequisitePro options, allows you to include the RequisitePro Learning Project and QuarterByte Bank example projects. These projects are helpful for testing and learning RequisiteWeb.

   ▫ The **Oracle Setup** and **SQL Server Setup** options are required for database administrators who are configuring Oracle or SQL Server databases for RequisitePro projects.

Possible Reboot Required

If files that are required for the installation are in use during the installation procedure, the Rational Windows Setup program may require that you reboot your system to complete the installation.

After rebooting, log on as the same user to complete the installation procedure.

Creating the RequisiteWeb Users

RequisiteWeb requires that you create two administrative users:

- a domain user, ReqWeb_RPXUser, for accessing RequisiteWeb components
- a local user, ReqWeb_WordUser, for launching Microsoft Word

Creating the RPX User on the Domain Server

Note: Be sure to log on to your domain server as an administrator for the following procedure.

Create the ReqWeb_RPXUser as a domain user on your domain server.

Table 9   Creating a Domain User

Step	NT 4.0	Windows 2000 Server
1	On the domain server, click **Start** > **Programs** > **Administrative Tools (Common)** > **User Manager for Domain**.	On the domain server, click **Start** > **Programs** > **Administrative Tools** > **Computer Management**.
2	Click **User** > **New User**.	Expand **Domain Users and Groups**. Right-click on **Users**; select **New User**.
3	In the **Username** field, type `ReqWeb_RPXUser` and enter a password of your choice.	In the **Username** field, type `ReqWeb_RPXUser` and enter a password of your choice.
4	Clear the check box **User must change password at next login** and select the check box **Password never expires**. Click **Add**; click **Close**.	Clear the check box **User must change password at next login** and select the check box **Password never expires**. Click **Create**; click **Close**.
5	Close the User Manager application.	Close the Computer Management application.

Adding the RPX User to the Requirements Server Administrators

Note: Be sure to log on to your RequisiteWeb Requirements server as an administrator for the following procedure.

Add the ReqWeb_RPXUser user to the Administrators group on your RequisiteWeb Requirements server.

Table 10   Adding the RPX User to the Local Administrators

Step	NT 4.0	Windows 2000 Server
1	On the Requirements server, click **Start** > **Programs** > **Administrative Tools** > **User Manager**.	On the Requirements server, click **Start** > **Programs** > **Administrative Tools** > **Computer Management**.
2	Click **User** > **Select Domain** and select your domain server.	Expand **Local Users and Groups**. Select **Groups**. Right-click Administrators and select **Add to Group**. In the Administrators Properties dialog box, click **Add**.
3	Select the ReqWeb_RPXUser and click **User** > **Properties**.	At the **Look in** field, select the domain.
4	Click **Groups**, and add the Administrators group to the **Member of** list. Click **OK**.	Select the ReqWeb_RPXUser and click **Add**. Click **OK**.
5	Close the User Manager application.	Close the Computer Management application.

Note: If any of your RequisitePro projects are located on a server other than the RequisiteWeb Requirements server, the ReqWeb_RPXUser must have Change or Modify permission for the directory containing the RequisitePro .rqs project file on the remote project server. For more information, see *Managing RequisitePro Projects for RequisiteWeb* on page 76.

Assigning DCOM Permissions for the RPX User

Note: If you are implementing a single-server configuration of RequisiteWeb, skip to *Creating the Word User* on page 50.

In this procedure, you set appropriate permissions in Microsoft Distributed COM (DCOM) for the RequisiteWeb in-process object server user (ReqWeb_RPXUser) to ensure necessary access to RequisitePro components and project databases.

Specifically, you will allow this user access to the RequisiteWeb Proxy executable, which is required for processing RequisitePro project information on the Requirements server.

Use DCOM to give the **ReqWeb_RPXUser** user **access**, **launch,** and **read** permissions for **RQProxy.Connector**. Set the identity to the ReqWeb_RPXUser user. The following sections provide detailed instructions for these procedures.

Assigning Access Permissions for the RPX User

1 On the **Start** menu, click **Run**, and type dcomcnfg

2 In the list of applications, select RqProxy.Connector and click **Properties**. The RqProxy.Connector Properties dialog box appears.

3 On the **Security** tab, click **Use custom access permissions**. Click the adjacent **Edit** button.

4 At the Registry Value Permissions dialog box, click **Add**.

5 At the Add Users and Groups dialog box, click the **List Names From** field and select your domain. Click **Show Users**.

6 Select the ReqWeb_RPXUser entry and click **Add**.

7 At the **Type of Access** field, select **Allow Access**. Click **OK** twice to return to the RqProxy.Connector Properties dialog box.

8 Continue with the next procedure.

Assigning Launch Permissions for the RPX User

1 On the **Security** tab of the RqProxy.Connector Properties dialog box, click **Use custom launch permissions**. Click the adjacent **Edit** button.

2 At the Registry Value Permissions dialog box, click **Add**.

3 At the Add Users and Groups dialog box, click the **List Names From** field and select your domain. Click **Show Users**.

4 Select the ReqWeb_RPXUser entry and click **Add**.

5 At the **Type of Access** field, select **Allow Launch**. Click **OK** twice to return to the RqProxy.Connector Properties dialog box.

6 Continue with the next procedure.

Assigning Configuration Permissions for the RPX User

1   On the **Security** tab of the RqProxy.Connector Properties dialog box, click **Use custom configuration permissions**. Click the adjacent **Edit** button.

2   At the Registry Value Permissions dialog box, click **Add**.

3   At the Add Users and Groups dialog box, click the **List Names From** field and select your domain. Click **Show Users**.

4   Select the ReqWeb_RPXUser entry and click **Add**.

5   At the **Type of Access** field, select **Read**. Click **OK** twice to return to the RqProxy.Connector Properties dialog box.

6   Continue with the next procedure.

Assigning Identity for the RPX User

1   At the RqProxy.Connector Properties dialog box, click the **Identity** tab.

2   Click **This user** and click **Browse**. Click the **List Names From** field and select your domain. Select the ReqWeb_RPXUser entry. Click **Add** and **OK**.

3   Enter and confirm the ReqWeb_RPXUser password that you defined when you created this user.

4   Click **OK** again to return to the Distributed COM Configuration Properties dialog box.

5   Close DCOM.

Creating the Word User

RequisiteWeb requires a local administrative user for launching Microsoft Word 2000 on the RequisiteWeb Requirements server. Create the **ReqWeb_WordUser** and add that user to the **Administrators** group, as described in the following instructions.

Table 11   Creating a User for Launching Word

Step	Windows NT 4.0	Windows 2000 Server
1	Click **Start** > **Programs** > **Administrative Tools** > **User Manager**.	Click **Start** > **Programs** > **Administrative Tools** > **Computer Management**.
2	Click **User** > **New User**.	Expand **Local Users and Groups** and right-click on **Users**; select **New User**.
3	In the **Username** field, type ReqWeb_WordUser and enter a password of your choice.	In the **User name** field, type ReqWeb_WordUser and enter a password of your choice.
4	Clear the check box **User must change password at next login** and select the check box **Password never expires**. Click **Add**; click **Close**.	Clear the check box **User must change password at next login** and select the check box **Password never expires**. Click **Create**; click **Close**.
5	At the User Manager dialog box, select the ReqWeb_WordUser and click **User** > **Properties**.	Select **Users**. Right-click the ReqWeb_WordUser entry and select **Properties**.
6	At the User Properties dialog box, click **Groups**.	At the **Member Of** tab, click **Add**.
7	At the Group Memberships dialog box, add the **Administrators** group to the **Member Of** list. Click **OK**.	Select the **Administrators** group, and click **Add**. Click **OK**.
8	Close the User Manager dialog box.	Close the Computer Management dialog box.

Assigning DCOM Permissions for the Word User

RequisiteWeb uses the Distributed Component Object Model (DCOM) and a local user with Administrator permissions to launch Microsoft Word.

Use DCOM to give the **ReqWeb_WordUser** user **access** and **launch** permissions for **Microsoft Word** and Microsoft Word Basic, if it appears in your DCOM application list. The following sections provide detailed instructions for these procedures.

Assigning Access Permissions for the Word User

1   On the **Start** menu, click **Run**, and type `dcomcnfg`

2   On the **Applications** tab, select Microsoft Word Document on the list of applications and click **Properties**.

3   On the **Security** tab, click **Use custom access permissions**. Click the adjacent **Edit** button.

4   At the Registry Key Permissions dialog box, click **Add**.

5   At the Add Users and Groups dialog box, click the **List Names From** field and select your local server. Click **Show Users**.

6   Select the ReqWeb_WordUser entry and click **Add**.

7   At the **Type of Access** field, select **Allow Access**. Click **OK** twice to return to the Word Document Properties dialog box.

8   Continue with the next procedure.

Assigning Launch Permissions for the Word User

1   On the **Security** tab of the Microsoft Word Document Properties dialog box, click **Use custom launch permissions**. Click the adjacent **Edit** button.

2   At the Registry Value Permissions dialog box, click **Add**.

3   At the Add Users and Groups dialog box, click the **List Names From** field and select your local server. Click **Show Users**.

4   Select the ReqWeb_WordUser entry and click **Add**.

5   At the **Type of Access** field, select **Allow Launch**. Click **OK** twice to return to the Word Document Properties dialog box.

6   Continue with the next procedure.

Assigning Identity for the Word User

1   At the Microsoft Word Document Properties dialog box, click the **Identity** tab.

2   Click **This user** and click **Browse**. Click the **List Names From** field and select your local server. Select the ReqWeb_WordUser entry. Click **Add** and **OK**.

3   Enter and confirm the ReqWeb_Word User password that you defined when you created this user.

4   Click **OK** again to return to the Distributed COM Configuration Properties dialog box.

    Note: You must return to this dialog box before continuing with the next procedure.

Assigning Word Access Permissions for Administrators

1   On the **Applications** tab of the Distributed COM Configuration Properties dialog box, select Microsoft Word Document on the list of applications and click **Properties**.

2   On the **Security** tab of the Microsoft Word Document Properties dialog box, click **Use custom access permissions**. Click the adjacent **Edit** button.

3   At the Registry Value Permissions dialog box, click **Add**.

4   At the Add Users and Groups dialog box, click the **List Names From** field and select your local server.

5   Select the Administrators entry and click **Add**.

6   At the **Type of Access** field, select **Allow Access**. Click **OK**.

7   Click **OK** several times to close the DCOM dialog boxes.

8   Repeat the assigning access, launch, and identity procedures, described above, for the Microsoft Word Basic entry, if it appears in your DCOM application list.

9   Reboot your system.

Creating a Document Directory on the Requirements Server

In order to display RequisitePro documents, RequisiteWeb creates temporary directories that contain copies of the project documents on the RequisiteWeb Requirements server.

To support these documents, create the following directory:

C:\Inetpub\wwwroot\ReqWebDoc\GenDoc

IIS 5.0 on Windows 2000 Advanced Server automatically creates a virtual directory that is associated with the GenDoc physical directory. In IIS 4.0 on Windows NT 4.0, use the following procedure to manually create a ReqWebDoc virtual directory.

Note: RequisiteWeb creates a word.tmp file in GenDoc while converting a Word document to HTML for viewing in the browser. While this file is present, no other users can convert documents. This file is deleted when the conversion is complete. In the case of a system crash, you may need to delete this file manually.

Creating a ReqWebDoc Virtual Directory on Windows NT 4.0

To create a virtual directory for RequisiteWeb on your RequisiteWeb Requirements server:

1   Click **Start > Programs > Windows NT 4.0 Option Pack > Microsoft Internet Information Server > Internet Service Manager**.

2   Right-click the Default Web Site and select **New Virtual Directory**.

3   In the Virtual Directory Creation Wizard, click **Next** and type an **Alias**: ReqWebDoc.

4   Click **Next** and browse to and select C:\Inetpub\wwwroot\ReqWebDoc\GenDoc.

5   Click **Next**, accept the default settings, and click **Finish** to complete the wizard.

6   Close the Internet Service Manager.

Installing the Oracle Client

In order to access RequisitePro projects that are stored in an Oracle database, you must configure Oracle client software on the Requirements server. Refer to the section *Setting Up PCs for Oracle Access* on page 23. That section refers to RequisitePro installation on a client PC; you must perform that procedure on the RequisiteWeb Requirements server.

Important: When implementing a single-server RequisiteWeb configuration, you must install the Oracle client software *before* installing the JDK if you are using a version of Oracle that is earlier than 8.1.7.

Setting Up the Single-Server Configuration

This section presents procedures for installing and configuring Web Server components on a single IIS Server. Perform the procedures described in *Configuring the RequisiteWeb Requirements Server* on page 44 before doing the following procedures. Be sure to log on as an administrator before you begin the installation process. These instructions assume that you have installed the Microsoft Internet Information Server (IIS) on your system and that it is running. For more information on IIS, see Microsoft Servers at www.microsoft.com/servers.

This section contains the following procedures:

1 Installing Java Components

2 Installing the Tomcat Servlet Engine

3 Configuring the ISAPI Redirector

4 Configuring Jakarta Virtual Directory on IIS

5 Adding a JSP Filter

6 Configuring the Environment Variables

7 Starting Tomcat

8 Testing Tomcat

9 Creating a ReqWeb Virtual Directory on IIS

10 Configuring the ReqWeb Directory

11 Editing the RequisiteWeb Configuration File

12 Final Steps

Installing Java Components

Continue your configuration of the RequisiteWeb server by installing the Sun Microsystems Java Development Kit (JDK 1.2.2), which includes the Java Runtime Environment (JRE).

If you already have the JDK installed on your system, check the version by entering the following at the MS-DOS shell command line: `java -version`
If your version is older than 1.2.2, you must upgrade to 1.2.2.

To install the JDK:

1 Download the JDK executable file from the Sun Microsystems site at http://java.sun.com/products/jdk/1.2/download-windows.html. The self-extracting file you download is jdk-1_2_2_006-win.exe.

Note: This Web site lists this product as the Java 2 Software Development Kit (SDK), Standard Edition, Version 1.2.2_006 for Microsoft Windows.

2 Execute the self-extracting JDK file at the root level on the Web server's local hard drive. By default, the JDK creates files at the following locations:

   ❑ C:\jdk1.2.2

   ❑ C:\Program Files\JavaSoft\JRE\1.2

3 You can verify your Java installation by entering the following at the MS-DOS shell command line: `java -version`

Installing the Tomcat Servlet Engine

To install Tomcat on your RequisiteWeb server:

1 Locate the jakarta-tomcat.zip file on the Rational Solutions for Windows CD, at the following location: \RequisitePro\ReqWeb\tomcat

2 Use WinZip to extract the jakarta-tomcat.zip file into the root (C:\) directory of your RequisiteWeb server. In the Extract dialog box, select the **Use folder names** check box. By unzipping this file into the C:\ root directory, WinZip creates the directory C:\jakarta-tomcat and its subdirectories.

Note: Be sure you extract the contents of this file into the C:\ directory -- not a subdirectory.

3 Copy the ReqWeb.war Web archive file from the RequisiteWeb installation directory. By default, this is: C:\Program Files\Rational\RequisitePro\ReqWeb. Paste the ReqWeb.war file into the directory: C:\jakarta-tomcat\webapps

Copying the server.xml and uriworkermap.properties files

Tomcat uses two configuration files: server.xml and uriworkermap.properties. These files must be modified in order to run RequisiteWeb.

Your RequisiteWeb installation includes preconfigured copies of the server.xml and uriworkermap.properties files at the following default location: C:\Program Files\Rational\RequisitePro\ReqWeb\tomcat

1. Copy and paste those files to the following location: C:\jakarta-tomcat\conf\

2. Overwrite the existing versions of those files unless you are already running Tomcat on your system. In this case, see Previous Tomcat Installations, below.

Note: Tomcat includes a Web server running on port 8080, which is not required for RequisiteWeb. You can disable this Web server by editing the Tomcat server.xml file. For more information, refer to the Tomcat documentation that is included in the Tomcat installation.

Previous Tomcat Installations

If you already have a previous installation of Tomcat, do not overwrite your current server.xml and uriworkermap.properties files; however, in this case you must add the following entries to those files:

File	New Entries
server.xml	Add the following lines between the two XML tags `<ContextManager ...>` and `</ContextManager>`: `<Context path="/ReqWeb" docbase="webapps/ReqWeb" debug="0" reloadable="false" > </Context>` **Note:** Be sure to enter this value without using carriage returns within the XML element. This entry is case-sensitive; enter it exactly as shown.
uriworkermap .properties	Add the following lines to the end of the file: `# Mount ReqWeb` `/ReqWeb/*.jsp=ajp12`

Note: Review the contents of the RequisiteWeb server.xml and uriworkermap.properties files for additional information.

Configuring the ISAPI Redirector

1. Locate and copy the isapi_redirect.dll file at the following default location: C:\Program Files\Rational\RequisitePro\ReqWeb\tomcat

2. Create a directory named "jakarta" under the C:\Inetpub\wwwroot\

3. Paste the isapi_redirect.dll file into the new directory: C:\Inetpub\wwwroot\jakarta

4 Locate the tomcat-iis-W2K.reg file in the following default directory:
C:\Program Files\Rational\RequisitePro\ReqWeb\tomcat

Note: This file assumes that you have configured the default Tomcat directory,
C:\jakarta-tomcat. If you specified a different drive or installation directory, you
must edit the tomcat-iis-W2K.reg file.

5 Double-click the tomcat-iis-W2K.reg file. This creates the following Registry keys
under the HKEY_LOCAL_MACHINE/SOFTWARE/:

- /Apache Software Foundation

- /Apache Software Foundation/Jakarta ISAPI Redirector

- /Apache Software Foundation/Jakarta ISAPI Redirector/1.0

Executing the tomcat-iis-W2K.reg file also adds the following String Values at the
1.0 Registry key:

String Value	Value
extension_uri	/jakarta/isapi_redirect.dll
log_file	C:\jakarta-tomcat\logs\isapi.log
log_level	error
worker_file	C:\jakarta-tomcat\conf\workers.properties
worker_mount_file	C:\jakarta-tomcat\conf\uriworkermap.properties

Note: If Tomcat is not installed in the default location shown in the table above, you
must modify the registry keys shown above to reflect the correct path. If you are
installing RequisiteWeb on an international operating system, make sure that the
Tomcat registry entries match your Tomcat installation paths.

Configuring Jakarta Virtual Directory on IIS

To configure a virtual directory for Jakarta Tomcat on your RequisiteWeb server:

1 Launch the Internet Services Manager by doing one of the following:

- In Windows NT 4.0, click **Start > Programs > Windows NT 4.0 Option Pack > Microsoft
Internet Information Server > Internet Service Manager**.

- In Windows 2000 Server, click **Start > Programs > Administrative Tools/Internet
Services Manager**.

2 Expand the entry for the IIS <server name> on the tree.

3 Expand the Default Web Site folder.

4 Right-click the jakarta virtual folder and select **Properties**.

5 Do one of the following:

- ▫ In Windows 2000, in the Properties dialog box at the **Virtual Directory** tab, click the **Execute permissions** drop-down list and select **Scripts and Executables**.

- ▫ In Windows NT, in the Properties dialog box at the **Directory** tab, click the **Execute (including script)** Permissions option.

6 Click **OK** to close the dialog box. Leave the Internet Services Manager open.

Adding a JSP Filter

The following filter setting instructs IIS to process JSP pages using Tomcat.

1 Right-click on the Default Web Site and select **Properties**.

2 At the **ISAPI Filters** tab, click **Add**.

3 Type the filter name: jakarta

4 Browse to and select: C:\Inetpub\wwwroot\jakarta\isapi_redirect.dll

5 Click **OK** to close the dialog boxes.

6 Close the Internet Services Manager.

Configuring the Environment Variables

1 On the Start menu, click **Settings** > **Control Panel**. In the Control Panel, double-click the **System** icon. The System Properties dialog box appears.

2 Do one of the following:

- ▫ In Windows 2000, at the **Advanced** tab, click **Environment Variables**.

- ▫ In Windows NT, click the **Environment** tab.

3 Add or modify the following system environment variables with the corresponding values, as shown. The PATH entry must be added to the existing PATH values on your system.

Note: The path for the following applications may vary on your system. Be sure to use the correct value when specifying the path for these environment variables.

Table 12   Setting Environment Variables

Variable	Value
JAVA_HOME	C:\jdk1.2.2
TOMCAT_HOME	C:\jakarta-tomcat
TOMCAT_OPTS	-DJINTEGRA_NATIVE_MODE -DJINTEGRA_COINIT_VALUE=0
PATH	<existing PATH>;%JAVA_HOME%\bin

Starting Tomcat

1   In the MS-DOS shell, type the following: cd C:\jakarta-tomcat\bin

2   Type the following: tomcat start

3   Leave the MS-DOS shells open. Closing the shells terminates the Tomcat process.

When Tomcat starts, the ReqWeb.war file expands to create a full directory structure for the RequisiteWeb components.

Note: You must restart Tomcat whenever the Web Server is rebooted. The user who starts Tomcat must remained logged on to the server as long as Tomcat and RequisiteWeb are in use. This user must have write permissions to the directories containing the RequisitePro .rqs project files, whether they are on the local machine or a remote server. If you have security questions related to this condition, contact Rational Software Technical Support.

Testing Tomcat

To verify that Tomcat is installed and configured correctly:

1   Open a browser on your IIS server and enter the following URL address:
    //<servername>:8080/examples/

    A list of JSP examples should appear. If it does not, check the steps for installing Tomcat, above; or, refer to the documentation in the /jakarta-tomcat/doc directory.

2   Click the link to **jsp**. On the page that appears, click the **Execute** link to right of **NumberGuess**. A guessing game should appear.

Creating a ReqWeb Virtual Directory on IIS

Note: If you have a previous instance of a ReqWeb virtual directory on this server, do not add another one. In Internet Service Manager, right-click on the ReqWeb virtual directory and select **Properties**. At the **Virtual Directory** tab, enter the following at the **Local Path** field: C:\jakarta-tomcat\webapps\ReqWeb. Then go to step 7 in the following procedure.

To create a virtual directory for RequisiteWeb on your IIS server:

1 Launch the Internet Services Manager by doing one of the following:

- In Windows NT 4.0, click **Start > Programs > Windows NT 4.0 Option Pack > Microsoft Internet Information Server > Internet Service Manager**.

- In Windows 2000 Server, click: **Start > Programs > Administrative Tools/Internet Services Manager**.

2 Expand the Default Web Site and verify that you do not have a ReqWeb virtual directory. If you do, refer to the note above.

3 Right-click the Default Web Site and select **New Virtual Directory**.

4 In the Virtual Directory Creation Wizard, click **Next** and type an **Alias**: ReqWeb.

5 Click **Next** and browse to and select C:\jakarta-tomcat\webapps\ReqWeb

6 Click **Next** and **Finish** to complete the wizard.

7 Right-click the Default Web Site and select **Properties**.

8 Do one of the following:

- On Windows 2000, click the **Web Site** tab.

- On Windows NT, click the **Performance** tab.

9 Clear the **HTTP Keep-Alives Enabled** check box. Click **OK** to close the dialog box.

Configuring the ReqWeb Directory

Use the Internet Services Manager to configure the ReqWeb virtual directory. Make the entries as shown in the following table. Be sure to follow the instructions in the column that corresponds to your operating system.

Table 13   ReqWeb Virtual Directory Configuration in IIS

Step	Windows NT 4.0/IIS 4.0	Windows 2000 Server/IIS 5.0
1	Right-click the ReqWeb virtual directory (located under the Default Web Site) and select **Properties**.	Right-click the ReqWeb virtual directory (located under the Default Web Site) and select **Properties**.
2	At the Properties dialog box, click the **Virtual Directory** tab. Select **Read** permission; clear **Write** permission. Be sure that the **Application Settings** section contains the **Name** "ReqWeb". Clear the box **Run in separate memory space**. At the **Permissions** list, select **Script**. Click **Configuration**.	At the Properties dialog box, click the **Virtual Directory** tab. Select **Read** permission; clear **Write** permission. Clear the **Directory Browsing** check box. Be sure that the **Application Settings** section contains the **Application Name** "ReqWeb". Accept **Medium** Application Protection. Click **Configuration**.
3	At the Application Configuration dialog box, click the **App Options** tab. Select **Enable session state**. Set **ASP Script timeout** to at least 90 seconds. Click **OK**.	At the Application Configuration dialog box, click the **App Options** tab. Select **Enable session state**. Set **ASP Script timeout** to at least 90 seconds. Click **OK**.
4	At the Properties dialog box, click the **Directory Security** tab. In **Anonymous Access and Authentication Control**, click **Edit**.	At the Properties dialog box, click the **Directory Security** tab. In **Anonymous access and authentication control**, click **Edit**.
5	At the Authentication Methods dialog box, select **Allow Anonymous Access** and click **Edit**.	At the Authentication Methods dialog box, select **Anonymous Access** and click **Edit**.

Table 13   ReqWeb Virtual Directory Configuration in IIS

6	In the Anonymous User Account dialog box, at **Username** field, replace the default entry by typing: ReqWeb_RPXUser Clear the check box **Enable Automatic Password Synchronization**. Click **OK** twice.	In the Anonymous User Account dialog box, at **Username** field, replace the default entry by typing: ReqWeb_RPXUser Clear the check box **Allow IIS to control password**. Click **OK** twice.
7	At the Properties dialog box, click the **Documents** tab. Select the **Enable Default Document** check box. Click **Add**. At the Add Default Document dialog box, type index.html. Click **OK**. At the Properties dialog box, on the **Documents** tab, select the index.html entry in the default document list. Use the up arrow to move that entry to the top of the list. Click **OK**.	At the Properties dialog box, click the **Documents** tab. Select the **Enable Default Document** check box. Click **Add**. At the Add Default Document dialog box, type index.html. Click **OK**. At the Properties dialog box, on the **Documents** tab, select the index.html entry in the default document list. Use the up arrow to move that entry to the top of the list. Click **OK**.
8	Close the Internet Service Manager	Close the Internet Services Manager.

Editing the RequisiteWeb Configuration File

To configure RequisiteWeb, execute the RWConfig Java utility as follows:

1 Open an MS-DOS shell and navigate to the following directory:
C:\jakarta-tomcat\webapps\ReqWeb\WEB-INF\classes

2 Type the following at the MS-DOS prompt:
set classpath=%classpath%;.

3 Type the following command to execute the RWConfig Java utility:

java RWConfig

4 For each setting (shown in the table below), accept the default or modify the value, as necessary.

Note: You must enter the RequisiteWeb server name in the RPXHTTP value. Other entries are provided by default; check to see whether they are correct for your installation.

Setting	Switch	Value
User ID	/uid	Press Enter to accept the default setting of <Blank>. If another value is shown, type DEL to set the entry to blank.
Password	/Password	Press Enter to accept the default setting of <Blank>. If another value is shown, type DEL to set the entry to blank.
Server Name	/RPXhost	Press Enter to accept the default setting of <Blank>. If another value is shown, type DEL to set the entry to blank.
Domain	/RPXdomain	Press Enter to accept the default setting of <Blank>. If another value is shown, type DEL to set the entry to blank.
RPXHTTP	/RPXHTTP	`HTTP://<server name>/ReqWebDoc/GenDoc/` **Note:** This case-sensitive entry is the URL to the directory for Microsoft Word temporary files. You must replace the `<server name>` entry with the correct RequisiteWeb server name.
RPXDocPath	/RPXDocPath	`C:\Inetpub\wwwroot\ReqWebDoc\GenDoc\` **Note:** This is the default location of temporary files generated by Microsoft Word. Modify this value if you have a different configuration.

RPXCatalog	/RPXCatalog	`C:\Program Files\Rational\RequisitePro\`
		`ReqWeb\Projects\catalog.txt`
		Note: This is the default location of the RequisitePro projects catalog file on the server. Modify this value if you have a different configuration.

Language	/Language	Press Enter to accept the default setting of "en" for English. *Do not* change this value unless your version of RequisiteWeb has been translated into your local language. This value is based on ISO639 language code standards. If you are using a Japanese version of RequisiteWeb, use the value "ja".
Country	/Country	Press Enter to accept the default setting of "US" for United States. *Do not* change this value unless your version of RequisiteWeb has been translated into your local language. This value is based on ISO3166 country code standards. If you are using a Japanese version of RequisiteWeb, use the value "jp".

Note: To set an individual parameter, run the RWConfig Java utility with one of the switches shown in the table above. For example, to change the path of the catalog file, enter the following at the command line in the classes directory:

```
java RWConfig /RPXCatalog
```

Note: The values you enter are stored in the following file:
C:\jakarta-tomcat\webapps\ReqWeb\WEB-INF\classes\config.txt

Maintaining RequisiteWeb Service

You must restart Tomcat whenever the Web Server is rebooted. The user who starts Tomcat must remain logged on to the server as long as Tomcat and RequisiteWeb are in use. This user must have write permissions to the directories containing the RequisitePro .rqs project files, whether they are on the local machine or a remote server. If you are done configuring RequisiteWeb, press Ctrl-Alt-Delete and lock your computer. If you have security questions related to this condition, contact Rational Software Technical Support.

Final Steps

To finish configuring your RequisiteWeb installation, refer to the following sections:

- *Managing RequisitePro Projects for RequisiteWeb* on page 76
- *Configuring E-mail for Discussions* on page 77
- *Starting RequisiteWeb* on page 78

Setting Up the Dual-Server Configuration

Configuring the Web Server

This section contains procedures for configuring your HTTP Web server for hosting RequisiteWeb on Sun Microsystems Solaris and Linux. Be sure to log on as an administrator before beginning your installation process. This installation assumes that you have installed the Apache Web server on your system. For more information on installing the Apache Web server, see Apache HTTP Server Project at www.apache.org.

Note: Samples in this section use the **BASH shell** (GNU Bourne-Again Shell) in the UNIX operating system. For example, the instructions for setting environment variables use the `export` command. Modify the samples with appropriate syntax for your OS shell.

Note: The **paths and file names** for your installation of the JDK, Apache Web server, and Tomcat may vary from the examples shown. Be sure to the provide the correct paths and file names.

This section contains the following procedures:

1 Installing Java Components

2 Testing the Apache Web Server Shared Object Handling

3 Configuring the Apache Web Server

4 Installing Tomcat

5 Installing Jserv

6 Configuring Apache for Tomcat

7 Installing RequisiteWeb Components on the Web Server

8 Editing the RequisiteWeb Configuration File

Installing Java Components

Begin your configuration of the RequisiteWeb HTTP server by installing the Java Development Kit (JDK 1.2.2), which includes the Java Runtime Environment (JRE).

1 If you already have the JDK installed on your system, check the version by entering the following at the system command line: `java -version`
If your version is older than 1.2.2, you must upgrade to 1.2.2.

2 Download and install the appropriate JDK (1.2.2 or higher) for your system's hardware and operating system. The JDK is available from Sun Microsystems at http://java.sun.com.

Note: Your distribution of the JDK may create a jdk1.2 directory. The following instructions refer to a jdk1.2.2 directory.

3 Set the environment variable JAVA_HOME to the name of your JDK directory:

```
export JAVA_HOME=/usr/local/jdk1.2.2
```

4 Add the JDK bin directory to your PATH environment variable:

```
export PATH=$PATH:$JAVA_HOME/bin
```

5 Add all of the JAR files in your JDK's lib directory to your CLASSPATH environment variable. For example:

```
export CLASSPATH=.:$JAVA_HOME/lib/tools.jar
```

Note: Make the environment changes permanent by adding the export commands, above, to your login script, such as the /etc/profile file.

Testing the Apache Web Server Shared Object Handling

Verify that Apache can load shared objects, which are necessary for RequisiteWeb.

1 Navigate to the directory that contains Apache's binary files; typically, this is /usr/local/apache/bin.

Note: Your Apache installation may be in /usr/apache.

2 Type the following command: `/usr/local/apache/bin/httpd -l`

If this command prints a line containing "`mod_so.c`" or "`mod_so`" then your installation will work for RequisiteWeb. Otherwise, use a different distribution or compile the Apache source files on your system.

Configuring the Apache Web Server

Perform the following configuration tasks for your Apache Web server installation.

In order to configure the Apache Web server for RequisiteWeb, you must copy the configuration files in /usr/local/apache/conf to new file names. This creates copies of the originally distributed example configuration files.

1 Navigate to the Apache configuration directory by typing the following:
```
cd /usr/local/apache/conf
```

2 Rename the sample configuration files using the copy command:
```
cp access.conf-dist access.conf
cp httpd.conf-dist httpd.conf
cp srm.conf-dist srm.conf
```

Note: Your Apache distribution may use .conf-example or another extension rather than the .conf-dist extension for these files.

3 Edit the .conf text files as needed:

The ServerRoot entry and subsequent lines, shown below, contain the path to your Apache Web server installation directory. Be sure that this path is correct.

```
ServerRoot        /usr/local/apache
DocumentRoot      /usr/local/apache/htdocs
Alias /icons/     "/usr/local/apache/icons/"
<Directory "/usr/local/apache/icons">
                  Options Indexes MultiViews
                  AllowOverride None
                  Order allow,deny
                  Allow from all
</Directory>
ScriptAlias /cgi-bin/ "/usr/local/apache/cgi-bin/"
<Directory "/usr/local/apache/cgi-bin">
                  AllowOverride None
                  Options None
                  Order allow,deny
                  Allow from all
</Directory>
```

Important: You will need to supply the path (shown in the value of the ServerRoot entry) when installing Jserv in a subsequent procedure.

4 Find the line defining the variable ServerName and set it to the host name your Web site visitors will use. This might be a host name, such as reqweb.rational.com, or an IP address, such as 192.168.1.1.

```
ServerName reqweb.rational.com
```

5 Optionally, make additional performance, security, and application changes to httpd.conf. By default, the httpd.conf file assigns the Apache Web server the same permissions that are assigned to the "nobody" user and group, as indicated by the following entries:

```
User nobody

Group nobody
```

See the file: /usr/local/apache/htdocs/manual/misc/security_tips.html for more security information. If you encounter problems, there is abundant documentation on installing and configuring Apache at the Web site: http://www.apache.org.

Starting and Verifying the Apache Web Server

1 To start Apache, type the command:

```
/usr/local/apache/bin/apachectl start
```

2 Open your Web browser and enter an address for your server name (http://<servername>/) or local host (http://localhost/). Apache's "Test Page for Apache Installation" should appear. If you receive an error message, check the logs in /usr/local/apache, double-check httpd.conf, and check the process list to see if Apache is really running. Enter one of the following:

- ❏ `ps -Af | grep httpd`   (on Solaris)
- ❏ `ps -auwwx | grep httpd` (on Linux)

If this command prints a list of processes, Apache is running. Otherwise, Apache did not start.

Installing Tomcat

1 Locate the jakarta-tomcat.tar.gz file on the Rational Solutions for Windows CD, at the following location: cd /cdrom/RequisitePro/ReqWeb/tomcat

2 Copy this file into a directory where you want to install Tomcat. This documentation uses /usr/local as the parent directory for the Tomcat installation. Therefore, your file should be saved as /usr/local/jakarta-tomcat.tar.gz.

```
cp jakarta-tomcat.tar.gz /usr/local
```

3 Change to the /usr/local directory:

```
cd /usr/local
```

4 Extract the Tomcat binaries:

```
gunzip -c jakarta-tomcat.tar.gz | tar -xvf -
```

5 Set the TOMCAT_HOME environment variable to the directory where you installed Tomcat:

```
export TOMCAT_HOME=/usr/local/jakarta-tomcat
```

Note: Make the environment changes permanent by adding the export command, above, to your login script, such as the /etc/profile file.

Starting and Testing Tomcat

1 To start Tomcat, type the following:

```
/usr/local/jakarta-tomcat/bin/startup.sh
```

2 To test Tomcat, enter the following address in your browser:
`http://<servername>:8080/examples`
You should be able see example Web applications, including pages that run Java Servlets and JSPs. If not, check the following:

- Your current PATH must contain the path to the "java" executable; for example $JAVA_HOME/bin

- Your JAVA_HOME environment variable must be assigned to the JDK installation directory; for example /usr/local/jdk1.2.2

- Your TOMCAT_HOME environment variable must be assigned to the Tomcat installation directory; for example /usr/local/jakarta-tomcat

- Tomcat should have exclusive access to its ports. If there are one or more other programs "listening" to Tomcat's ports, you should see a Java BindException message when starting Tomcat. By default, Tomcat uses the TCP/IP ports 8007 and 8080 on your machine. If there is a conflict, you can change which ports Tomcat uses by editing the file: /usr/local/jakarta-tomcat/conf/server.xml.

- Tomcat must be running. To verify this, type one of the following:

```
ps -Af | grep tomcat     (on Solaris)
ps -auwwx | grep tomcat (on Linux)
```

Note: You must restart Tomcat whenever the Web server or the Requirements server is rebooted.

Installing Jserv

Jserv is an executable shared object that Tomcat uses to communicate with the Apache Web server. For Linux systems, use the compiled shared object, described in "Installing Jserv on Linux," below. For Solaris systems, you must compile Jserv on your system; refer to the section "Compiling Jserv on Solaris," below.

Installing Jserv on Linux

1   Locate the mod_jserv.so file on the Rational Solutions for Windows CD, at the following location: cd /cdrom/RequisitePro/ReqWeb/tomcat

2   Copy the mod_jserv.so file into Apache's libexec directory in the ServerRoot directory, which is specified in the httpd.conf file, by typing the following:

```
cp mod_jserv.so /usr/local/apache/libexec
```

Refer to *Configuring the Apache Web Server* on page 67 to identify the ServerRoot directory.

3   Assign root ownership and executable permission:

```
cd /usr/local/apache/libexec
chown root:root mod_jserv.so
chmod +x mod_jserv.so
```

Compiling Jserv on Solaris

Prior to installing Jserv on the Solaris operating system, you must compile it. In order to compile Jserv, you must have the following utilities:

▪   ANSI-C compliant compiler

▪   Perl script interpreter

▪   Apache extension tool Perl script (apxs)

ANSI-C Compliant Compiler

Check whether you have an ANSI-C compiler such as GNU's gcc installed. Solaris machines often do not have an ANSI-C compiler; if not, install the GNUgcc package for your version of Solaris. Make sure this compiler is included in your path:

```
export PATH=$PATH:<GNUgcc path>/bin
```

To create a link to the compiler (on Solaris systems only):

1   Find the cc program in your file structure:

```
which cc
```

2 Navigate to that directory.

```
cd /usr/ucb
```

3 Rename the cc program to a backup copy, such as cc.old.

```
mv cc cc.old
```

4 Create a link to gcc.

```
ln -s /usr/local/bin/gcc cc
```

Perl Script Interpreter

Most Solaris machines have a pre-installed Perl interpreter. Use the following command to locate your executable Perl interpreter:

```
which perl
```

This outputs the full path and name of the interpreter program, for example:

```
/usr/bin/perl
```

Apache Extension Tool Perl Script (apxs)

The apxs script is a Perl script that allows you to compile programs that extend Apache. By default, it is located in /usr/local/apache/bin. Verify that you can run this script; for example, type: `/usr/local/apache/bin/apxs`

Note: If you cannot run apxs, check that the line at the top of the apxs file matches the location of your perl interpreter; for example `#!/usr/bin/perl`

1 Navigate to the directory containing the Jserv source code:

```
cd /usr/local/jakarta-tomcat/src/native/apache/jserv
```

2 Compile mod_jserv.c:

```
/usr/local/apache/bin/apxs -c -o mod_jserv.so *.c
```

Be sure to enter this command exactly as shown, including spaces. This produces an executable called mod_jserv.so.

3 Copy the mod_jserv.so executable into Apache's libexec directory in the ServerRoot directory, which is specified in the httpd.conf file. Refer to *Configuring the Apache Web Server* on page 67 to identify the ServerRoot directory.

```
cp mod_jserv.so /usr/local/apache/libexec
```

Configuring Apache for Tomcat

Tomcat generates a configuration file that enables Apache to communicate with Tomcat. You must edit this configuration file to ensure this communication:

1 To stop Apache and Tomcat, type the following:

   ```
   /usr/local/apache/bin/apachectl stop
   ```

   ```
   /usr/local/jakarta-tomcat/bin/shutdown.sh
   ```

2 Open the following file in an editor:

   /usr/local/apache/conf/httpd.conf

3 Add the following line to the end of the file:

   ```
   Include /usr/local/jakarta-tomcat/conf/tomcat-apache.conf
   ```

4 Start Tomcat:

   ```
   /usr/local/jakarta-tomcat/bin/startup.sh
   ```

   Tomcat generates the tomcat-apache.conf configuration file.

5 Start Apache:

   ```
   /usr/local/apache/bin/apachectl start
   ```

   Apache reads the configuration file.

6 If Apache does not start, check for the following conditions:

   ▫ There is a typographic error in the file:
      ```
      /usr/local/apache/conf/httpd.conf
      ```

   ▫ Apache cannot find the file:
      ```
      /usr/local/jakarta-tomcat/conf/tomcat-apache.conf
      ```

   ▫ Apache cannot find the file:
      ```
      /usr/local/apache/libexec/mod_jserv.so
      ```

   ▫ Apache cannot read and execute the file:
      ```
      /usr/local/apache/libexec/mod_jserv.so
      ```

   ▫ There are duplicate or conflicting configuration entries in the following files:
      ```
      /usr/local/apache/conf/httpd.conf
      /usr/local/jakarta-tomcat/tomcat-apache.conf
      ```

7 If Apache still does not start, examine the Apache log files in the following directory: /usr/local/apache/logs

Installing RequisiteWeb Components on the Web Server

1 Navigate to the directory that contains the ReqWeb.war file on the Rational Solutions for Windows CD:

```
cd /cdrom/RequisitePro/ReqWeb/
```

2 Copy the ReqWeb.war file into Tomcat's Web applications directory:

```
cp ReqWeb.war /usr/local/jakarta-tomcat/webapps
```

3 Locate the preconfigured server.xml file from the following default location:

```
cd /cdrom/RequisitePro/ReqWeb/tomcat/
```

4 Copy it into the following location: /usr/local/jakarta-tomcat/conf/

```
cp server.xml /usr/local/jakarta-tomcat/conf/
```

Note: If you already have a previous installation of Tomcat, do not overwrite your current server.xml file; however, you must make the following addition to that file:

Add the following lines between the two XML tags `<ContextManager ...>` and `</ContextManager>`:

```
<Context path="/ReqWeb" docbase="webapps/ReqWeb" debug="0"
reloadable="false" > </Context>
```

Note: Be sure to enter this value without using carriage returns within the XML element. This entry is case-sensitive; enter it exactly as shown.

5 Optional step: Tomcat includes a Web server running on port 8080, which is not required for RequisiteWeb. You can disable this Web server by editing the Tomcat server.xml file. For more information, refer to the Tomcat documentation that is included in the Tomcat installation.

6 Stop Tomcat:

```
/usr/local/jakarta-tomcat/shutdown.sh
```

7 Stop Apache:

```
/usr/local/apache/bin/apachectl stop
```

8 Create the following folder:

```
mkdir /usr/local/jakarta-tomcat/webapps/reqweb
```

Note: This new reqweb directory is in addition to the existing ReqWeb directory.

9 Copy the index.html file from the ReqWeb directory to the reqweb directory:

```
cp /usr/local/jakarta-tomcat/webapps/ReqWeb/index.html
/usr/local/jakarta-tomcat/webapps/reqweb
```

10 Start Tomcat:

```
/usr/local/jakarta-tomcat/startup.sh
```

Note: This may take a few moments longer than usual because Tomcat must extract and decompress ReqWeb.war.

11 Start Apache:

```
/usr/local/apache/bin/apachectl start
```

Editing the RequisiteWeb Configuration File

To configure RequisiteWeb, execute the RWConfig Java utility as follows:

1 Open a shell and navigate to the following directory:
/usr/local/jakarta-tomcat/webapps/ReqWeb/WEB-INF/classes

2 Type the following at the shell prompt:
```
export CLASSPATH=$CLASSPATH:.
```

3 Type the following command to execute the RWConfig Java utility:

```
java RWConfig
```

4 For each setting, accept the default or modify the value, as necessary.

Note: You must enter the RequisiteWeb server name in the RPXHTTP value. Other entries are provided by default and may be correct for your installation.

Setting	Switch	Value
User ID	/uid	Enter the user ID: ReqWeb_RPXUser **Note:** This is the user that RequisiteWeb uses to log on to the Requirements server.
Password	/Password	Enter the password for the ReqWeb_RPXUser.
Server Name	/RPXhost	Enter the Requirements server name. Depending on your network configuration, you may need to enter the server IP address instead of the server name. Contact your system administrator for more information.
Domain	/RPXdomain	Enter the domain name for the Requirements server. If the domain name is not valid, DCOM searches for the user ID on the local server. If there is no domain, enter a placeholder value, such as RequisiteWeb.

Setting	Switch	Value
RPXHTTP	/RPXHTTP	`HTTP://<server name>/ReqWebDoc/GenDoc/` **Note:** This case-sensitive entry is the URL to the directory on the Requirements server for Microsoft Word temporary files. You must replace the `<server name>` entry with the correct server name.
RPXDocPath	/RPXDocPath	`C:\Inetpub\wwwroot\ReqWebDoc\GenDoc\` **Note:** This is the default location of temporary files generated by Microsoft Word on the Requirements server. Modify this value if you have a different configuration.

RPXCatalog	/RPXCatalog	`C:\Program Files\Rational\RequisitePro\`
		`ReqWeb\Projects\catalog.txt`
		Note: This is the default location of the RequisitePro projects catalog file on the Requirements server. Modify this value if you have a different configuration.

Language	/Language	Press Enter to accept the default setting of "en" for English. *Do not* change this value unless your version of RequisiteWeb has been translated into your local language. This value is based on ISO639 language code standards. If you are using a Japanese version of RequisiteWeb, use the value "ja".
Country	/Country	Press Enter to accept the default setting of "US" for United States. *Do not* change this value unless your version of RequisiteWeb has been translated into your local language. This value is based on ISO3166 country code standards. If you are using a Japanese version of RequisiteWeb, use the value "jp".

Note: To set an individual parameter, run the RWConfig Java utility with one of the switches shown in the table above. For example, to change the path of the catalog file, enter the following at the command line in the classes directory:

`java RWConfig /RPXCatalog`

Note: The values you enter are stored in the following file:
/usr/local/jakarta-tomcat/webapps/ReqWeb/WEB-INF/classes/config.txt

Managing RequisitePro Projects for RequisiteWeb

While RequisiteWeb provides features for accessing and editing requirements and documents in projects, you must use the full RequisitePro PC client application to create projects and documents. RequisitePro offers project templates and other management tools for creating and modifying project structure and security. For more information refer to the guide *Using Rational RequisitePro* or the RequisitePro online help.

Using the RequisiteWeb Project Catalog

RequisiteWeb uses a catalog text file to provide access to RequisitePro projects. By default, the file contains entries for the RequisitePro Learning Project and another sample project. The projects that are listed in your catalog file appear in the **Projects** drop-down list on the RequisiteWeb logon page.

To add your own projects to the catalog, you must enter the full path for the project file, which has a .rqs extension. For instructions on modifying the catalog, see *Editing the RequisitePro Projects Catalog* on page 77.

Accessing Projects on Different Servers

If you are using Microsoft Access for your RequisitePro project database, the database file must be located on the RequisiteWeb Requirements server. By default, local projects are created in the following directory:
\Program Files\Rational\RequisitePro\ReqWeb\Projects.

RequisiteWeb can open SQL Server- and Oracle-based projects that are not physically located on the RequisiteWeb Requirements server; however, in this case the ReqWeb_RPXUser domain user must have Change or Modify permission for the directory containing the RequisitePro .rqs project file on the remote project server.

In order to access RequisitePro projects that are stored in an Oracle database, you must configure Oracle client software on the Requirements server. Refer to the section *Setting Up PCs for Oracle Access* on page 23. That section refers to a RequisitePro installation on a client PC; you must perform that procedure on the Requirements server.

Important: When implementing a single-server RequisiteWeb configuration, you must install the Oracle client software *before* installing the JDK if you are using a version of Oracle that is earlier than 8.1.7.

After installing or upgrading RequisiteWeb, the projects that are not located on your RequisiteWeb Requirements server may not be visible in the **Projects** drop-down list, even though they are listed in your catalog file. To refresh the project list, run the

DCOM configuration application by typing `dcomcnfg` at the **Start** > **Run** command line. The DCOM application appears; close it. Check your projects list in RequisiteWeb.

Editing the RequisitePro Projects Catalog

To edit the catalog, perform the following procedure on the RequisiteWeb server in the single-server configuration or on the Requirements server in the dual-server configuration:

1 Navigate to the directory:
   C:\Program Files\Rational\RequisitePro\ReqWeb\Projects

2 Using a text editor, open the catalog.txt file.

3 Create an entry on each line with the full path to the RequisitePro project file. Copy the format of default project entries.

   Note: Use a full path for local projects on the Requirements server. To access projects on another server, you must specify a Universal Naming Convention (UNC) path to the shared folder containing the RequisitePro .rqs file.

4 Save and close the catalog.txt file.

Note: In order to view updates to the catalog.txt file, users must log off RequisiteWeb and then select a project at the initial RequisiteWeb entry page.

Configuring E-mail for Discussions

To configure e-mail for RequisitePro discussions, refer to *Configuring E-mail for Discussions* on page 13 in this guide. You use the same Rational E-mail Reader session for both RequisitePro and RequisiteWeb; however, note the following requirements when configuring the Rational E-mail Reader for both RequisitePro <u>and</u> RequisiteWeb:

▪ You must run the Rational E-mail Reader on a **different** server than the IIS server.

▪ In order to enable e-mail for RequisiteWeb discussions, you must configure discussion e-mail using the **SMTP** protocol option in the Rational E-mail Reader. The MAPI protocol option is not supported for RequisitePro or RequisiteWeb.

▪ The E-mail Setup option on the RequisitePro Tools menu **does not** configure e-mail for RequisiteWeb discussions. Use the Rational E-mail Reader, as described on page 13, to configure e-mail for RequisiteWeb discussions.

Starting RequisiteWeb

To access a RequisitePro project in RequisiteWeb:

1 Open your browser.

2 Set the URL address to the full path to the logon page in the RequisiteWeb virtual
   directory; for example: http://<server name>/reqweb

   Note: Be sure to use the server name rather than an IP address.

3 Navigate to that address. The RequisiteWeb logon page appears.

4 Select a RequisitePro project from the **Project** list. If your project does not appear on
   the list, refer to the procedure *Managing RequisitePro Projects for RequisiteWeb* on
   page 76.

5 Type your RequisitePro **User** name and **Password** and click **Log on**.

Removing RequisiteWeb

This section describes how to remove RequisiteWeb from an IIS server. Prior to
removing RequisiteWeb from your system, make sure that no one is using
RequisiteWeb or any associated files. You will not be able to remove files that are in
use.

RequisiteWeb installs a new project catalog containing paths to new sample projects.
Be sure to make a copy of your existing catalog.txt file before removing RequisiteWeb.
Add your previous catalog.txt entries to the new catalog file that is installed with the
new version of RequisiteWeb. For more information, see *Managing RequisitePro
Projects for RequisiteWeb* on page 76.

Removing RequisiteWeb on Windows with IIS

To remove RequisiteWeb from a Windows NT or Windows 2000 server, you must
have Windows administrator privileges on that machine. Use the following
instructions to:

- Remove or redirect the ReqWeb virtual directory
- Stop the IIS Admin Service
- Remove the RequisiteWeb program files
- Restart your Web Publishing Service

Removing or Redirecting the ReqWeb Virtual Directory

1 Launch the Internet Services Manager by doing one of the following:

- Click **Start** > **Run**, and type inetmgr. Click **OK**.

- In Windows NT 4.0, click **Start > Programs > Windows NT 4.0 Option Pack > Microsoft Internet Information Server > Internet Service Manager**.

- In Windows 2000 Server, click **Start > Programs > Administrative Tools/Internet Services Manager**.

2 Select the Default Web Site and click the **Stop** button on the toolbar.

3 Right-click on the ReqWeb virtual directory and select **Properties**. The ReqWeb Properties dialog box appears. Click the **Virtual Directory** tab.

4 Depending on whether you are upgrading or simply removing RequisiteWeb from your system, do one of the following:

- If you are upgrading to a new version of RequisiteWeb, do not delete your ReqWeb virtual directory. After you have installed your new version of RequisiteWeb, you will redirect the ReqWeb virtual directory to the new path, as described in *Creating a ReqWeb Virtual Directory on IIS* on page 60.

- If you are not upgrading, but simply removing all RequisiteWeb components from your system, click **Remove** and click **OK** to close the dialog box.

Stopping the IIS Admin Service

Perform the instructions in the following table. Refer to the column that corresponds to your operating system.

Step	Windows NT 4.0	Windows 2000 Advanced Server
1	Close the Internet Service Manager.	In the Internet Services Manager, right-click on the server name.
2	At the Start/Run command line, type cmd.	Select **Restart IIS**.
3	In the MS-DOS window, type the following: net stop iisadmin /y and press **Enter**.	At the Stop/Start/Reboot dialog box, select **Stop Internet Services on <server name>**.

Step	Windows NT 4.0	Windows 2000 Advanced Server
4	The following message appears: "The IIS Admin Service was stopped successfully." The C:\ prompt appears after the command is successfully executed. Type exit to close the MS-DOS window.	Click **OK** to close the dialog box. Close the Internet Services Manager.

Removing the RequisiteWeb Program

Use the **Add/Remove Programs** function in the Windows Control Panel to select and remove **RequisitePro**. After the uninstall process is complete, check to see if the C:\Program Files\Rational\RequisitePro\ReqWeb directory is still present on the server. If so, delete the ReqWeb directory and its subdirectories.

Restarting the Web Publishing Service

Perform the instructions in the following table. Refer to the column that corresponds to your operating system.

Step	Windows NT 4.0	Windows 2000 Advanced Server
1	In the MS-DOS window, type the following: net start w3svc and press **Enter**.	In the Internet Services Manager, right-click on your server name.
2	The following message appears: "The World Wide Web Publishing Service was started successfully." The C:\ prompt appears after the command is successfully executed.	Select **Restart IIS**. At the Stop/Start/Reboot dialog box, select Restart Internet Services on <server name>.
3	Type exit to close the MS-DOS window.	Click **OK** to close the dialog box and close the Internet Services Manager.

Removing RequisiteWeb from a Unix Web Server

To remove RequisiteWeb components from your Solaris or Linux Web Server, you need to remove directories and environment variables.

Warning: Be sure that you only delete those components that are not required for other applications on your server.

Note: When removing environment variables, check the /etc/profile file to ensure that the environment variables are cleared for all sessions.

Removing the Java Development Kit

Remove the following directory and its subdirectories from the server:

/usr/local/jdk1.2.2

Remove the JAVA_HOME and CLASSPATH environment variables.

Removing Tomcat

Remove the following directories and their subdirectories from the server:

- /usr/local/apache
- /usr/local/jakarta-tomcat

Remove the following environment variable from the server:

- TOMCAT_HOME

Troubleshooting

<div style="text-align: right; font-size: 4em;">5</div>

If you have any problems running the Rational Software Setup program, try the following suggestions before you call Rational Customer Support for help:

- Be sure to stop all applications before you begin the installation.

- Turn off all virus protection software. These programs often run in the background and interfere with the installation and file decompression process.

- Turn off any user interface managers or desktop environments that run on top of Microsoft Windows.

- Change to a standard VGA video driver while Rational Setup is running, or disable video features such as virtual screens or screen switching.

- Change to a standard mouse driver, or disable special mouse features that perform tasks such as leaving pointer trails or changing pointer sizes.

- Make certain that your system meets the minimum system requirements listed in: "System and Software Requirements" on page 2 and "RequisiteWeb System Requirements" on page 38.

Installation Messages

Contact Rational Customer Support for information and assistance regarding any error messages you encounter while installing Rational software. See "Contacting Rational Technical Support" on page xiv contact information.

Installation error messages, including messages for silent installations, are displayed in the file `<Install Path>\RSSetup\Error.log`. For more information on silent installations, refer to the guide *Installing Rational Suite*, which is included on the CD: *Rational Solutions for Windows – Online Documentation CD*.

Table 14   Silent Installation Messages

Message	Description
Product "ProductName" specified in response file is not contained in the product list.	This error message appears when the `response.ini` file contains an invalid product name.
Unable to open response file.	Typically, this error occurs when the installation procedure cannot locate the `response.ini` file. Either you have specified an incorrect path or the `response.ini` file is not in the default location.
Information required to remove the specified product cannot be found. The product may not be removed automatically.	When trying to remove a product with the /uninstall switch, you either specified a product that is not installed on your system or you incorrectly typed the product name on the command line. Confirm that you are specifying a product on your system. Confirm that you have typed the product name exactly as it appears in the Rational Software Setup program.

Support Information

Contact Rational Customer Support if you have questions regarding the installation, use, or maintenance of this Rational Software product.

Contacting Rational Technical Support on page xiv provides Rational Customer Support telephone and e-mail contact information.

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