

IBM® Rational® DOORS

*Using Rational DOORS for HP Quality
Center Interface*



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Release 3.5

Before using this information, be sure to read the general information under the "Notices" chapter on page 61.

This edition applies to **IBM Rational DOORS for HP Quality Center Interface, VERSION 3.5**, and to all subsequent releases and modifications until otherwise indicated in new editions.

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About this manual

Welcome to IBM® Rational® DOORS® for HP Quality Center Interface.

Rational DOORS for HP Quality Center Interface allows you to synchronize data between Rational DOORS, the world's leading requirements management solution, and HP Quality Center, an integrated enterprise application for organizing and managing the entire testing process. You can transfer requirements in Rational DOORS to an HP Quality Center project, and transfer tests and defects between HP Quality Center and Rational DOORS. You can access Rational DOORS requirements information using your HP Quality Center interface, and access HP Quality Center test and defect information using your Rational DOORS interface.

This document describes how to install and use version 3.5 of Rational DOORS for HP Quality Center Interface. It assumes that you know how to use both Rational DOORS and HP Quality Center.

Typographical conventions

The following typographical conventions are used in this manual:

Typeface or Symbol	Meaning
Bold	Important items, and items that you can select, including buttons and menus. For example: Click Yes to continue.
<code>Courier</code>	Commands, files, and directories; computer output. For example: Edit your <code>.properties</code> file.
>	A menu choice. For example: Click File > Open . This means click the File menu, then click the Open command from it.

Related documentation

The following table describes where to find information in the documentation set:

For information on	See
How to use Rational DOORS	The Rational DOORS Information Center
How to use HP Quality Center	The HP Quality Center documentation set
How to use the administration console	The administration console online help
What's new in Rational DOORS for HP Quality Center Interface	The Rational DOORS for HP Quality Center Interface readme files
How to set up licenses to use Rational DOORS for HP Quality Center Interface	Rational Lifecycle Solutions Licensing Guide

2

Installing Rational DOORS for HP Quality Center Interface

This chapter contains information about how to install and configure Rational DOORS for HP Quality Center Interface to integrate with Rational DOORS. It contains the following:

- Understanding the installation options
- Upgrading from previous versions of the integration
- Installing the integration server
- Installing an integration client
- Installing the administration console
- Upgrading the administration console from v3.4 and v3.4.0.2 to v3.5
- Upgrading version 3.1 data
- Uninstalling the integration

Understanding the installation options

The integration installer has two installation options:

- **Integration client**
Use this option to install only the integration client. You install an integration client on each Rational DOORS client that uses the integration. This option allows the Rational DOORS user to access the integration options available in the Rational DOORS client.
- **Integration server**
Use this option to install both the integration server and the integration client.

Upgrading from previous versions of the integration

You can upgrade to version 3.5 of the integration from version 1.8, 3.0, 3.1, 3.2, 3.3, and 3.4. To upgrade from 1.8 and 3.0 you must install version 3.1, and then install version 3.5 and migrate your 3.1 data to 3.5. The integration automatically migrates your version 3.2, 3.3, and 3.4 data to version 3.5.

The following sections describe what you must do to upgrade to version 3.5 from a previous version.

- Upgrade from version 1.8
- Upgrade from version 3.0
- Upgrade from version 3.1
- Upgrade from version 3.2, 3.3, and 3.4

Upgrade from version 1.8

1. Synchronize your 1.8 data. The data must be synchronized before you uninstall version 1.8.
2. Uninstall version 1.8 using **Add or Remove Programs** from the Windows Control Panel.
3. Install version 3.1.
You do not need to configure or run version 3.1 after you install it. However, you must install it before you install version 3.5.
4. Install version 3.5
5. Migrate your 3.1 data to 3.5.

For information about migrating data from version 3.1 to 3.5, see “Upgrading version 3.1 data,” on page 15.

Upgrade from version 3.0

On machines with version 3.0 of TestDirector Integration installed, install version 3.1, then install version 3.5 and migrate 3.1 data to 3.5.

For information about migrating data from version 3.1 to 3.5, see “Upgrading version 3.1 data,” on page 15.

Upgrade from version 3.1

You can upgrade direct to version 3.5 from version 3.1.

On machines with version 3.1 of TestDirector Integration installed, install version 3.5, then migrate 3.1 data to 3.5.

For information about migrating data from version 3.1 to 3.5, see “Upgrading version 3.1 data,” on page 15.

Upgrade from version 3.2, 3.3, and 3.4

The integration automatically migrates your version 3.2, 3.3, and 3.4 data to version 3.5.

Installing the integration server

If you are upgrading the integration server, see “Upgrading from previous versions of the integration,” on page 3 for information about how to upgrade to 3.5.

Installing the integration server also automatically installs the integration client. Installing the integration server is a two-step procedure. First, you run the installer, and then you run the configuration tool.

Before you start

If you are installing the integration server on **Windows Server 2008**, you need to set IIS7 to use IIS6 compatibility mode.

To set IIS7 to use IIS6 compatibility mode:

1. Click **Start > Administrative Tools > Server Manager**.
2. In the navigation pane, expand **Roles**, right-click **Web Server (IIS)**, and then click **Add Role Services**.
3. In the **Select Role Services** pane, scroll down to **IIS 6 Management Compatibility**.
4. Select **IIS 6 Metabase Compatibility** and **IIS 6 Management Console**.
5. In the **Select Role Services** pane, click **Next**.
6. In the **Confirm Installations Selections** pane, click **Install**.
7. Click **Close**.

Run the installer

To install the integration server:

1. Check that you meet the system requirements. Open the Rational DOORS for HP Quality Center Interface readme file, which is available from the Rational DOORS information center:
 - a. Open the Rational DOORS information center, which is available at <http://pic.dhe.ibm.com/infocenter/doorshlp/v9r5/index.jsp>.
 - b. Click **Integrating > Rational DOORS for HP Quality Center Interface**.

- c. Click the link to the latest release of the Rational DOORS for HP Quality Center Interface.
2. If the .NET Framework v3.5 is not already installed on your machine, install it. If you proceed with the installation, and the .NET Framework is not detected by the installer, a browser window is opened at Microsoft's .NET Framework download page before you can proceed beyond Step 7.
3. If you are already running version 3.2 or 3.3, uninstall it.
4. Make sure that you are logged on to your computer as a user with Administrator privileges.
5. Shut down all other applications. In particular, shut down Microsoft Office applications, including the Microsoft Office toolbar.
6. Check that the default website in the Internet Information Services Manager is started. If it is not, right-click and select **Start**.
7. Using Windows Explorer, double-click **setup.exe**.

The **Welcome** screen is displayed.

If the **Modify/Repair/Remove** dialog box is displayed, exit the installer and modify the installation using **Add or Remove Programs** in the Windows Control Panel.

8. Click **Next**.
- The **License Agreement** screen is displayed.
9. Select the **I accept** option and click **Next**.
- The **Choose Destination Location** screen is displayed.
10. Enter the path to the folder to install to, or leave the default.
11. Click **Next**.

The **Setup Type** screen is displayed.

12. Select **Server** and click **Next**.

Note This option installs both the integration client and the integration server.

The **Integration Server TCP Port** screen is displayed.

13. Enter the TCP port on which the Internet Information Service (IIS) is serving the default website.

To find out the port number:

- a. On the desktop, right-click on **My Computer** and select **Manage**.

The **Computer Management** window is displayed.

- b. Navigate **Services and Applications > Internet Information Service (IIS) Manager > Web Sites**.
- c. Right-click **Default Web Site** and select **Properties**.

The TCP Port is displayed in the Web Site Identification panel.

14. Click Next.

The **Domain and Group Name** screen is displayed.

- 15. In Domain Name**, enter the name of the machine where you are installing the integration server. In **Group Name**, enter the name of a group with the necessary privileges to access the administration console. In **Admin Group Name**, enter the name of a QCI Administrator group with the necessary privileges to perform administrative operations in the administration console. If you need to create the group, use the Computer Management window.

16. Click Next.

The **Ready to Install the Program** screen is displayed.

17. Click Install.

The necessary files are installed on the machine, and the **Wizard Completed** window is displayed.

- 18. To complete the installation, you must run the configuration tool.**

You can run the configuration automatically or manually:

- To run the configuration tool automatically, select **Launch the configuration tool**, and click **Finish**. The install wizard closes, and the **Rational DOORS for HP Quality Center Interface Configuration Tool** dialog box is displayed.

Go to step 3 of “Run the configuration tool,” on page 9.

- To run the configuration tool manually, clear **Launch the configuration tool**, and click **Finish**. The install wizard closes.

Follow the steps in Run the configuration tool.

Access control functionality

During the installation, you grant members of the administrator user group authorization to perform administrative operations in the administration console. Users who belong to this group can perform operations such as creation, modification and deletion of following items:

- Data connection
- Integration map
- Data end points
- Task
- Attribute map

Users who are not members of the administrators group cannot perform the operations on the data types listed above. They cannot change the data end point for an existing integration map and task. They cannot save a task. However, they can execute and schedule a task.

This access control functionality also has impact on HP Quality Center Interface installer. The person who performs the server installation must provide an administrators user group name, such as “QCI Administrator,” during the installation. The group name is saved in the DoorsTDIServices webservice web.config file under the “QCIAdminGroupName” key.

After a user logs in to administration console, the system verifies that the user is a member of the administrators group. If membership is confirmed, then the user can perform administrative operations; otherwise, a message is displayed that indicates that the user has insufficient permissions.

The following operations in the HP Quality Center Interface Administration tool require administrator permissions:

- Create data connection
- Modify data connection
- Delete data connection
- Add end point
- Modify end point
- Delete end point
- Create integration map
- Edit name and description of integration map
- Delete integration map
- Create attribute map
- Add attributes to map by drag and drop
- Save attribute map
- Delete attribute map

- Clear end point container
- Set end point master
- Create attributes
- Clear connection
- Change container end point by drag and drop
- Delete attribute mapping between end point containers
- Map list values
- Create task
- Move task to different integration map
- Edit name and description of task
- Change master end point of task
- Change target end point of task
- Save end points of task
- Delete task

Run the configuration tool

Before you proceed, you need to configure the integration server.

To configure the integration server:

1. If it is still open, shut down the Computer Manager.
2. From the Start menu click **IBM Rational > IBM Rational Tools > IBM Rational DOORS for HP Quality Center Interface 3.5 Tools > Set Access Permissions**.

The **Rational DOORS for HP Quality Center Interface Configuration Tool** dialog box is displayed.

3. In **Username** enter a user.

By default, a local machine user called IWSUSER is used in this tool. However, you can specify a domain user instead. The tool cannot create a domain user, but if one exists it can be used.

- To specify or create IWSUSER, enter **<machinename>\IWSUSER**.
 - If a user named IWSUSER already exists, leave the check box clear.
 - If a user named IWSUSER does not exist, select the check box.
- To specify a domain user, enter **<domainname>\<user name>**, and leave the check box clear.

4. Enter a password in the **Password** and **Confirm Password** boxes.
 - If IWSUSER exists, enter the user's existing password.
 - If IWSUSER does not exist, enter a new password.

This password uses the Windows 2003 password rules that are in force on your system.
5. Click **Next**.

The **Gathering the virtual folder structure** dialog box is displayed.
6. Enter the name of the website that is hosting the services, or leave the default.
7. Enter the path to the location of the virtual folder for Tivoli® Directory Integrator Services and the Statement of Quality (SoQ) Services, or leave the defaults.
8. Click **Next**.

The **Applying configuration** dialog box is displayed.

A warning dialog box is also displayed.
9. Click **Yes**. When all the categories have been successfully configured, click **Next**.

A summary screen is displayed.

You can use the **Copy** button to copy the summary text.
10. Click **Next**.

The **Testing Services** dialog box is displayed.

You can use the **Copy** button to copy the results text.
11. Select **Run Tests** to test the availability of the services.
12. If necessary, add the IWSUSER to the group you created in step 16 of "Run the installer," on page 5.

Caution Due to security policies in organizations, you might need to change the IWSUSER user account's password periodically. When the password is reset, you cannot login to the administration console. If you change the IWSUSER password, you must rerun the Set Access Permissions configuration tool, as described in this procedure.
13. Navigate to HP Quality Center and log in to download ActiveX components.

14. Click **Finish**.

Troubleshooting the configuration tool

When you configure the HP Quality Center Interface using the Set Access Permissions configuration tool, you must provide details such as user credentials, web site, and file paths. If you provide incorrect or incomplete details, an error message is displayed in red in the user interface. This error message helps you identify problems and enter the correct information to complete the configuration.

A summary of the configuration is displayed after configuring services.

If the `capicom.dll` file is not registered, the following error is displayed in the summary:

```
--- Configuring Services ---
Configuring SOQ WebService
Failure - System.Exception: Retrieving the COM class factory for
component with CLSID {A440BD76-CFE1-4D46-AB1F-15F238437A3D}
failed due to the following error: 80040154. Capicom dll is not
registered. Please re-register Capicom dll.
```

If `capicom.dll` is not available at registered path, the following error is displayed in the summary:

```
--- Configuring Services ---
Configuring SOQ WebService
Failure - System.Exception: Retrieving the COM class factory for
component with CLSID {A440BD76-CFE1-4D46-AB1F-15F238437A3D}
failed due to the following error: 8007007e. Capicom dll is not
found. Please check Capicom dll path.
```

To resolve these problems, register the `capicom.dll` file:

1. In Windows, click **Start** > **Run**.
2. Type: `regsvr32 <capicom.dll path>`
For example, `regsvr32 "C:\Windows\system 32\capicom.dll"`

To resume the configuration process from the summary page of the configuration tool, click **Back**. The “Gathering the virtual folder structure” page is displayed. Continue the configuration process as described in “Run the configuration tool” section, above.

Installing an integration client

After the integration server has been installed on the server machine, you can install the integration client on the Rational DOORS and HP Quality Center client machines that you want to access the integration.

To install the integration client:

1. Check that you meet the system requirements. Details of system requirements can be found in the Rational DOORS for HP Quality Center Interface readme file, which is available from the Rational DOORS information center:
 - a. Open the Rational DOORS information center, which is available at <http://publib.boulder.ibm.com/infocenter/doorshlp/v9/index.jsp>.
 - b. Click **Integrating > Rational DOORS for HP Quality Center Interface**.
 - c. Click the link to the readme file.
2. Make sure that you are logged on to your computer as a user with Administrator privileges.
3. Shut down all other applications. In particular, shut down Microsoft Office applications.
4. Using Windows Explorer, double-click **setup.exe**.

The **Welcome** screen is displayed.

If the **Modify/Repair/Remove** dialog box is displayed, exit the installer and modify the installation using **Add or Remove Programs** in the Windows Control Panel.

5. Click **Next**.

The **License Agreement** screen is displayed.
6. Select the **I accept** option and click **Next**.

The **Choose Destination Location** screen is displayed.
7. Enter the path to the folder to install to, or leave the default and click **Next**.

The **Setup Type** screen is displayed.
8. Select **Client** and click **Next**.

The **Specify the Location of Integration Server** screen is displayed.
9. In **Webserver**, enter the fully qualified domain name or IP address of the machine on which the integration server is installed.

10. In **Port**, enter the TCP Port on which the Integration Administration Service is serving the default website on the integration server machine. This TCP Port was entered in Step 13 of “Installing the integration server,” on page 5.
11. Click **Next**.
The **Ready to Install the Program** screen is displayed.
12. Click **Install**.
A progress bar is displayed as the files are installed.
Note If you do not have the Internet Information Service (IIS) installed, an error is displayed. Click **Ignore**, and continue with the installation. You can run the integration client without IIS.
13. Click **Finish**.

Installing the administration console

You use the Rational DOORS for HP Quality Center Interface administration console to define synchronization tasks that exchange data between Rational DOORS and HP Quality Center. If you install the administration console, you can create tasks, map attributes, and create new attributes in Rational DOORS and entities in HP Quality Center.

Note If you are upgrading the administration console from v3.4 to v3.5, see “Upgrading the administration console from v3.4 and v3.4.0.2 to v3.5,” on page 15.

To install the administration console:

1. Make sure that you have the .NET Framework v3.5 installed.
2. Open your Internet browser and type
`http://<qciserver:port>/AdminToolInstall/index.htm`.
The administration console installation welcome page is displayed.
3. If you need to install the .NET Framework, do so now.
Note The .NET Framework is installed in the background. Make sure that it is installed before you proceed. The .NET icon is displayed in the notification area on the taskbar.
4. Run the administration console installer.

Click **setup**.

5. To install the administration console from the local machine, select **Save**, and then double-click the **setup.exe** file. To install the administration console from the network, select **Run**.

The **Welcome** screen is displayed.

6. Click **Next**.

The **License Agreement** screen is displayed.

7. Accept the terms of the agreement and click **Yes**.

The **Choose Destination Location** screen is displayed.

8. Enter the path to the folder to install to, or leave the default and click **Next**.

The **Ready to Install the Program** screen is displayed.

9. Click **Install**.

A progress bar is displayed as the files are installed.

10. Click **Finish**.

11. Start the administration console.

From the Start menu click **IBM Rational > IBM Rational Tools > IBM Rational DOORS for HP Quality Center Interface 3.5 Tools > Administration Tool**.

Specifying the license server path for the administration console

When the administration console is started, a Rational DOORS for HP Quality Center Interface license is consumed. This license is released when administration console is stopped.

When the administration console is started the first time after installation, the user is prompted to enter the path to the license server. The path value is stored in the DOORSTDIAdmin.exe.config file at the following location by default:

C:\Program Files\IBM\Rational\DOORS for HP Quality Center Interface Admin Tool\3.5. This license server path is located at the **QCILicenseServerPath** entry of **<appSettings>** section of **DOORSTDIAdmin.exe.config**.

When the administration console is started in subsequent sessions, the license is acquired at the license server path. This process might take 10-25 seconds.

Upgrading the administration console from v3.4 and v3.4.0.2 to v3.5

If you are upgrading the administration console from v3.4 or v3.4.0.2 to v3.5, you must uninstall the integration server and the administration console, and then install the integration server and the administration console.

To upgrade the administration console from v3.4 or v3.4.0.2 to v3.5:

1. Uninstall the v3.4 or v3.4.0.2 integration server.
2. Uninstall the v3.4 or v3.4.0.2 administration console.
3. Install the v3.5 integration server.
4. Install the v3.5 administration console.

Note Make sure you uninstall and then install the components in the order indicated in this procedure.

Upgrading version 3.1 data

To upgrade version 3.1 data to version 3.5:

1. Shut down web services.
2. Run the Migration tool.

From the Start menu click **IBM Rational > IBM Rational Lifecycle Solution Tools > IBM Rational DOORS for HP Quality Center Interface 3.5 Tools > Migrate 3.1 Data to 3.5**.

3. Select the 3.1 folder.

Enter the location of the 3.1 data. By default this data is in
`c:\inetpub\wwwroot\doorstdintegrationwebservices.`

4. Select the 3.5 folder.

Enter the location of the 3.5 data. By default this data is in
`c:\inetpub\wwwroot\DOORSTDIServices\.`

5. Click **Perform Migration**.

The migration is performed.

6. Restart web services to pick up the migrated data.

Uninstalling the integration

Use **Add or Remove Programs** in the Windows Control Panel to remove version 3.5 of Rational DOORS for HP Quality Center Interface and the administration console.

3

Analyzing your data

- User roles
- Data architecture
- Common attribute maps
- Working with synchronization tasks
- SoQ attributes

User roles

Rational DOORS for HP Quality Center Interface provides a unique, role-based approach to systems integration. The roles addressed include the Analyst, the QA/Tester, and the Analyst Manager.

Analysts

Analysts working in Rational DOORS are interested in developing requirements that can be satisfied by both development and test. If requirements need to be verified through testing, the Analyst creates **qualification criteria**, which detail the testing that is required. By using the integration, the Analyst can monitor that test planning covers all of the original requirements and can interrogate the test plan to check that it meets the qualification criteria. Once testing begins, the Analyst can monitor the requirements for associated defects that have been raised against tests that have failed. The analyst can identify full business impact for defect resolution against the original customer demand.

QA/Testers

QA/Testers working in HP Quality Center are interested in test development and test execution. QA/Testers take the qualification criteria as their requirements and develop tests to meet them. Tests are associated back to the requirements so that a review can take place to make sure that all of the defined objectives have been met.

Analyst Managers

Analyst Managers working in Rational DOORS are interested in finding if tests have been successfully developed and then executed against the original requirements. Initially managers are only interested in a true or false answer to distinguish if a requirement can be considered qualified. As a manager needs to

perform analysis on why a requirements has not been successfully tested, more detail is needed. This detail is provided by the Statement of Quality (SoQ) reports that are generated using Rational DOORS for HP Quality Center Interface.

Overall benefits

The Analyst Manager understands the full business impact of releasing a system.

The Analyst can focus on providing testable requirements, and can be involved in prioritization of defects dependent on business impact.

The QA/Tester can test against a defined set of requirements instead of testing what is built.

Data architecture

Traditional integrations between two products often make the assumption that a subset of information can be synchronized and replicated into two different databases. While this integration is intended to be used on enterprise scale data, it cannot do this by simply scaling the amount of information that is replicated; there is no magic solution on how to duplicate gigabytes of information. Rather than take this normal approach of data duplication, the integration requires the organization to perform some analysis on their data architectures in order to identify one or more subsets of information that need to be available in both Rational DOORS and HP Quality Center.

Data analysis starts with questions:

1. What information in Rational DOORS makes up the qualification criteria that should be displayed in the requirements pane in HP Quality Center? How does the tester know what to test and when to consider that a test needs to pass?
2. What information in HP Quality Center should be displayed in modules in Rational DOORS? Each different type of information seen in HP Quality Center will be transferred into one or more Rational DOORS modules.

The answers to these questions are not as obvious as it appears. The fact that the integration can synchronize a certain type of information does not mean that it should. Consideration of the other aspects of the integration should be taken into account before data analysis can be considered as complete. For instance, SoQ attributes are designed to reduce the amount of information that needs to be explicitly synchronized.

Common attribute maps

Rational DOORS for HP Quality Center Interface uses the concept of **attribute maps** as the basis for synchronizing Rational DOORS and HP Quality Center. Attribute maps are the relationships between Rational DOORS attribute types and HP Quality Center field types.

Data is transferred between the attributes and fields that are mapped. When you map attributes, you must make sure that the attribute type in Rational DOORS is compatible with the field type in HP Quality Center. For example, you might set up a relationship between a string attribute type in Rational DOORS and a string field type in HP Quality Center. This mapping would allow the data to be shared between the two.

When you begin to plan the mappings between different modules in Rational DOORS and HP Quality Center, you quickly realize that many of the mappings are similar. For example, the attribute types in a Rational DOORS module that map to the field types in an HP Quality Center entity are similar, if not the same, as those between other modules and entities.

To take advantage of this fact, Rational DOORS for HP Quality Center Interface uses **common attribute maps** to allow you to set up the relationships between Rational DOORS and HP Quality Center quickly and easily.

When you set up your common attribute maps, they are used to organize your synchronization tasks. For example, if you have four synchronization tasks that use the same common attribute map, they are displayed under it (almost as if the common attribute map were a folder).

For more information about synchronization tasks, see the administration console's online help.

Working with synchronization tasks

Before you start to use Rational DOORS for HP Quality Center Interface, you must spend some time analyzing what information needs to be visible in both Rational DOORS and HP Quality Center. Once you have done this, care is needed to break this information down and develop a synchronization strategy.

To do this effectively, you need to understand the scope of information. Scope can be understood to be the combination of three elements:

- Information category
You may want to integrate requirements, tests or defects.
- Volume of information

How much of the information in a category needs to be seen in both Rational DOORS and HP Quality Center.

- Attribute ownership and mapping

Which tool can modify data and how this information is seen by the secondary tool.

You need to understand the scope of information before you define it with one or more synchronization tasks. Synchronization task definitions establish rules by which the integration will function. It is not necessarily the case that only one synchronization task should be used to describe the complete scope of information.

Performance of the integration is governed by the overall size of a synchronization task and the amount of data that has been modified since the last synchronization. Where possible, task definition should restrict the overall volume of data by constraining both the filter used and the number of attributes considered. A second strategy for task definition is to consider the amount of data that is being modified. If it is known that an area of information is infrequently subject to change and a different area of data is far more volatile, split the task definition into two, with one task being synchronized less frequently than the other.

Improving performance of synchronization tasks

Rational DOORS for HP Quality Center Interface gives you a number of different ways to improve the performance of synchronization tasks. You can set up your system so that it performs the following tasks:

- Running synchronization tasks in chunks
- Running synchronization tasks in parallel
- Running synchronization tasks in parts
- Running synchronization tasks at specific times

Running synchronization tasks in chunks

If you have a synchronization task that contains a large number of objects to be processed, you can break it down into “chunks”, and run each chunk in parallel. There are settings that allow you to determine the maximum number of chunks that can run in parallel and the maximum number of objects in each chunk. For example, if you have a synchronization task that processes 5,000 objects, you can set your system to run a maximum of five chunks in parallel, with each chunk containing a maximum of 1,024 objects. When the synchronization task is run, five separate processes of 1,024 objects are run in parallel. Instead of carrying

out 5,000 processes one after the other, your system can carry out the 5,000 processes in a much shorter time.

Running synchronization tasks in parallel

As well as being able to break down synchronization tasks into different chunks that can then be run in parallel, you can also set up your system to run the synchronization tasks themselves in parallel. The number of synchronization tasks that you can run simultaneously is determined only by your hardware.

You can also prioritize your tasks, making sure that the most important tasks are always run first.

Note The integration does not execute synchronization tasks in parallel if those tasks have end points that are located in different Rational DOORS databases. The synchronization tasks are completed in one database before tasks in another database are started.

Running synchronization tasks in parts

As well as being able to break down synchronization tasks into chunks and then running the synchronization tasks themselves in parallel, you can also select to run only parts of a synchronization task.

Each task is now broken down into three separate parts:

- Content

The content part of the synchronization task refers to changes to the data that need to be synchronized, for example straightforward changes to the text in a requirement.

- Structure

The structure part of the synchronization task refers to changes to the hierarchy of the objects in the task, for example when objects are created, moved, or deleted.

- Links

The links part of the synchronization task refers to changes to the links in and out of the objects in the task.

For example, if you know that a synchronization task very rarely contains changes to the structure or to links, you can split it into two tasks: one task that processes only changes to the content, and a separate task that processes the changes to the content, the structure, and the links. You can then run the first task every night, and run the second task every week.

Running synchronization tasks at specific times

Finally, there is a setting that allows you to set up a specific time during which a synchronization task is run. By entering a start time and end time, you can make sure tasks are not run when you need to have access to your databases to carry out other tasks. Typically, synchronization tasks are run overnight; you can use the start time and end time to make overnight runs the only time when synchronization tasks can be run.

This time is set per database.

Determining the best strategy for your synchronization tasks

The decisions about running synchronization tasks in chunks, in parallel, in parts, and at specific times, are determined by your specific set up, and the number and size of your synchronization tasks. If you only run a small number of tasks that process a small number of objects, it might make sense for you to simply set up the synchronization tasks to run sequentially. If, on the other hand, you have a large number of tasks that process a large number of objects, investing the time in determining the best way to organize the running of your tasks is time well spent.

For more information about synchronization tasks themselves, see “Understanding synchronization tasks,” on page 25.

SoQ attributes

Task synchronization is not the only way to retrieve HP Quality Center information into Rational DOORS and display it alongside the requirements. SoQ attributes have been defined to provide three levels of reporting against the original qualification criteria. SoQ attributes are produced as a report with the assumption that this reporting is only done at milestones in a project and not more frequently. If a report needs updating, it must be recreated.

The three levels of report include:

- SoQ Value

A single statement against each requirement describing if the requirement and its children can be considered as qualified or not. As the report is produced a defined test set within HP Quality Center is used to interrogate the state of testing at a particular time.

- SoQ Defect

A slightly more verbose version of SoQ Value. Where a non-qualified requirement has associated defects within HP Quality Center, information

about the defect is reported alongside the requirement itself. The Analyst can now determine if the priority of the defect has been set to indicate the business impact on the defect if it is not resolved at time of release.

- **SoQ Report**

An extension to SoQ Defect providing a mini-report on TestRuns run against each requirement in the module. This report provides a summary of testing and the level of defects that have been raised against a requirement.

For more information about SoQ attributes, see “Creating SoQ Attributes,” on page 43.

4

Understanding synchronization tasks

- About synchronization tasks
- What information can be transferred?
- About synchronization task components
- REQUIREMENTS entities and synchronization tasks
- TEST entities and synchronization tasks
- DEFECT entities and synchronization tasks
- Naming synchronization tasks
- About mapping attributes and fields

About synchronization tasks

Before you start creating synchronization tasks it is important that you analyze the data that needs to be available in both Rational DOORS and HP Quality Center. You should be aware that the amount of information that is transferred by a synchronization task and the frequency with which that data is modified will impact on the decision you take about how to set up your synchronization tasks. For more information about what you should consider before creating your synchronization tasks, see “Analyzing your data,” on page 17.

Each subset of data that you want to transfer should be defined by either a module filter that is saved as part of a view, or as an HP Quality Center favorite. These views and favorites can be selected when you create the synchronization tasks and this is how you define the data that is to be transferred. The Rational DOORS view must also have any attributes that you want to be available to the integration displayed in columns.

For each view or favorite that you have created, you must create a synchronization task. A synchronization task comprises mappings between the attributes in a Rational DOORS module and fields in an HP Quality Center entity. The synchronization task binds a Rational DOORS module to an HP Quality Center entity and defines the rules that will govern the transfer of the data between the databases.

What information can be transferred?

The integration can move data between the REQUIREMENTS, TESTS and DEFECTS entities in HP Quality Center and any number of Rational DOORS modules.

For each entity, one or other application must be the controlling application. The controlling application is the application that controls the creation and deletion of objects. So, if you have five synchronization tasks that define information that is to be transferred between the TESTS entity and Rational DOORS, all five must specify the same application as the controlling application.

Rational DOORS must be the controlling application for the REQUIREMENTS entity and typically HP Quality Center will be the controlling application for the TEST and DEFECTS entities. Using Rational DOORS and HP Quality Center in this way enables the Analyst to use SoQ attributes to interrogate the HP Quality Center database from Rational DOORS and retrieve varying levels of information about the state of testing for the project.

For Rational DOORS to be able to retrieve this information, you must create synchronization tasks for both the REQUIREMENTS entity and the TEST entity. The synchronization tasks for the REQUIREMENTS entity should define the qualification criteria for the project. Once the qualification criteria have been transferred to HP Quality Center as requirements, the QA/Tester can begin creating tests and associating the tests with the requirements that they verify.

HP Quality Center provides a function by which tests can be created automatically from requirements. This has two main advantages for the integration:

- If you have created the qualification criteria in Rational DOORS in a hierarchical structure, that structure is copied when the tests are created. Non-leaf objects are created as folders in the TEST entity and leaf objects are created as tests. When the analyst in Rational DOORS creates SoQ attributes to determine the status of the project, the values for the leaf objects are propagated up through the hierarchy, so the analyst can get a high level statement of quality for the project as a whole. More detailed information can be viewed by navigating down through the hierarchy in Rational DOORS.
- Associations are created automatically from the tests to the requirements when the tests are created. The integration relies upon the creation of associations to retrieve and present testing information to the Analyst using the SoQ attributes.

If you want Analysts to see data from the DEFECTS entity in Rational DOORS, you can create synchronization tasks to transfer this information. Again care should be taken when analyzing what information needs to be transferred so that you can maximize the performance of the integration. Remember that the analyst can retrieve information about the defects that impact the project using SoQ attributes, so it may not be necessary to create synchronization tasks for the DEFECTS entity.

About synchronization task components

For each subset of information you want to transfer between Rational DOORS and HP Quality Center you must create a synchronization task comprising mappings between the attributes in a Rational DOORS module and fields in an HP Quality Center entity. You map attributes in Rational DOORS to fields in HP Quality Center. Data is transferred between the mapped attributes when the synchronization task is run.

Rational DOORS

To set up a Rational DOORS module for synchronization, create the Rational DOORS view. The view should contain columns for each of the attributes you want to make available for mapping. If Rational DOORS is to be the controlling application for the entity, for example if you want to copy data from the selected Rational DOORS module to HP Quality Center, a filter that displays the objects you want to copy should be saved with the view.

Note If you are synchronizing a view that contains Object Text requirements that are children of objects that contain Object Heading values, then the parent objects are synchronized along with their Object Heading values even if your view does not contain a mapping to include Object Heading values.

HP Quality Center

To set up an HP Quality Center entity for synchronization, select the HP Quality Center Domain, Project and Entity along with Attributes you want to make available for mapping. If HP Quality Center is to be the controlling application for the entity, i.e. if you want to copy data from the entity to Rational DOORS, you also select the favorite that displays the elements you want to copy to Rational DOORS.

Synchronization task

The synchronization task defines the rules by which data is transferred between the databases. The synchronization task defines the controlling application, attribute mappings and a synchronization schedule.

Controlling application

The controlling application is the application that controls the creation and deletion of objects. Rational DOORS must be the controlling application for the REQUIREMENTS entity, and typically HP Quality Center is the controlling application for the TEST and DEFECT entities.

For example, if Rational DOORS is the controlling application for an entity and a Rational DOORS user deletes an object that has been synchronized with HP Quality Center, the corresponding object is deleted in HP Quality Center the next time the synchronization task is run. If an HP Quality Center user deletes elements that have been created as the result of a synchronization and the corresponding objects still exist in Rational DOORS, those elements are recreated when the synchronization task is run.

Note Only elements and objects that have been created by a synchronize are deleted if they are removed from the controlling database.

Attribute mappings

Each Rational DOORS attribute that is included in a synchronization task must be mapped to a compatible field in HP Quality Center. Data in attributes that are not mapped, or that are mapped to incompatible fields, cannot be transferred when the synchronization task is run. For information about the attribute and field types that are compatible, see “About mapping attributes and fields,” on page 32.

When you map attributes, you also define which application is the owner of the attribute. The attribute owner is the application that controls the content of the individual fields or attributes, and can be either Rational DOORS or HP Quality Center. So, although one application controls the creation and deletion of objects, you can specify which application can edit the attributes that are mapped.

Synchronization

You set a synchronization schedule for each synchronization task. The frequency with which a synchronization task should be run will depend on the information it contains and how often that information is modified.

The synchronization task is run automatically according to the schedule that is set. However, synchronization tasks can also be run manually from Rational DOORS, and the administration console.

REQUIREMENTS entities and synchronization tasks

Once you have identified the requirements and attributes that make up the qualification criteria for the project, you need to create synchronization tasks to copy that information to the REQUIREMENTS entity in HP Quality Center. You set up a Rational DOORS module for each subset of data you want to copy to HP Quality Center. You must also create one or more HP Quality Center entities.

The attributes you included in each Rational DOORS module must be mapped to compatible HP Quality Center fields so that the data can be synchronized successfully.

The HP Quality Center entities define the Domain, Project, Entity and Attributes for the qualification criteria to be copied to. As all of the qualification criteria will be copied to the REQUIREMENTS entity, the number of HP Quality Center entities you have to create depends on whether all the Rational DOORS modules include the same attributes, or different attributes. If they all include the same attributes, you can create one HP Quality Center REQUIREMENTS entity and map all of the Rational DOORS attributes to it. If the Rational DOORS modules contain different attributes, you will have to create an HP Quality Center mapping for each Rational DOORS module that contains a different set of attributes.

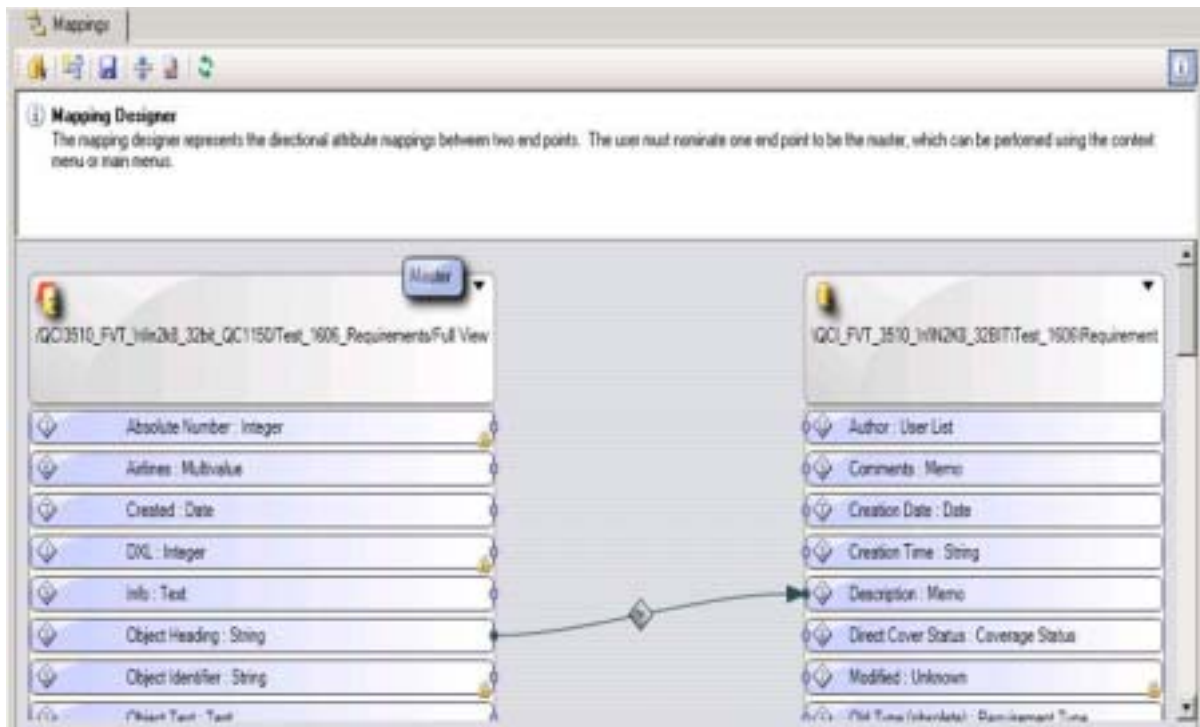
You can create the HP Quality Center fields for mapping manually, or you can let the integration do this for you. This function is available when you create the synchronization task. Instead of creating and selecting the HP Quality Center fields to which you want to map the Rational DOORS attributes, you can create it from the Rational DOORS attributes. This will create compatible fields in the REQUIREMENTS entity for all the attributes that are included in the Rational DOORS module you select, and will include those fields in the HP Quality Center mapping that it creates.

Once the HP Quality Center entity has been created, you can select it when you create subsequent synchronization tasks, or you can use the function again to create new HP Quality Center mappings to other Rational DOORS modules.

Incremental synchronization of requirements to version-controlled projects

When synchronizing Rational DOORS requirements with an HP Quality Center project that is version-controlled, if an incremental synchronization is run, then only those Rational DOORS objects that are modified since previous synchronization are copied to HP Quality Center. New versions are created for these objects in HP Quality Center.

Some Rational DOORS objects might only have modified attributes that are not mapped for synchronization. These attributes are referred to as non-mapped attributes. For example, in the following figure, the Object Heading attribute in Rational DOORS is a mapped attribute. However, all other attributes are non-mapped attributes.



In previous releases of this interface, incremental synchronization created new versions for Rational DOORS objects even if the objects only contained changes to non-mapped attributes. When mail notification was configured, users received email notifications for these new versions, even though no HP Quality Center attributes had been modified.

The current implementation of incremental synchronization creates new versions and email notification only for those Rational DOORS objects in which at least one mapped attribute has been modified since previous synchronization.

This implementation applies only to incremental synchronization and not to full synchronization. For full synchronization, new versions are created in HP Quality Center for objects with mapped or non-mapped attributes, and for objects with no modification since previous synchronization.

TEST entities and synchronization tasks

When tests have been created to verify the qualification criteria in the REQUIREMENTS entity and the tests have been associated with the requirements they verify, you create synchronization tasks to copy the test data to Rational DOORS. You create an HP Quality Center entity for each subset of information you want to copy to Rational DOORS. You can copy all of the test information to a single Rational DOORS module through one or more synchronization tasks, or you can copy subsets of information to different modules.

You must also create one or more Rational DOORS modules to which the HP Quality Center entities can be mapped.

As with the mappings for the REQUIREMENTS entity, the number of Rational DOORS modules you require for mapping is determined by the attributes that are included in each HP Quality Center mapping, and whether you want to copy the data to one or more Rational DOORS modules. You must create a Rational DOORS mapping for each Rational DOORS module you want to copy data to. If you want to map more than one HP Quality Center entity to a single Rational DOORS module, and the entities contain different attributes for mapping, you will have to create views in the Rational DOORS module that displays compatible attributes for the fields in each HP Quality Center entity. You must then create a Rational DOORS module for each view.

You can create the Rational DOORS modules for mapping manually, or you can let the integration do this for you. This function is available when you create the synchronization task. Instead of creating and selecting the Rational DOORS module to which you want to map the HP Quality Center entity, you can create it from the HP Quality Center entity. You select the HP Quality Center entity to create the Rational DOORS module from, and the module you want to copy the HP Quality Center data to. The integration then creates compatible attributes in the module for all the fields that are included in the selected HP Quality Center entity, and includes those attributes in the Rational DOORS module it creates.

Once the Rational DOORS module has been created, you can select it when you create subsequent synchronization tasks, or you can use the function again to create different Rational DOORS modules for mapping to other HP Quality Center entities.

DEFECT entities and synchronization tasks

You create mappings for the DEFECTS entity in the same way as for the TEST entity.

Remember that analysts can retrieve information about defects that impact the project by creating SoQ attributes in the requirements modules, so it may not be necessary to create synchronization tasks for the DEFECTS entity.

Naming synchronization tasks

It is worthwhile spending some time before you start using the integration setting up naming conventions for synchronization tasks. This means that it will be easier to identify the synchronization tasks and the information that is being transferred by them.

You may also want to consider creating a file containing the names and descriptions of synchronization tasks, which can be stored in a central location and accessed by users of the integration.

About mapping attributes and fields

When you create a synchronization task, you have to map attributes in Rational DOORS to fields in HP Quality Center. Data is transferred between the attributes and fields that are mapped, so when you map attributes, you must make sure that the attribute type in Rational DOORS is compatible with the field type in HP Quality Center. The following table shows the types that are compatible in Rational DOORS and HP Quality Center.

Rational DOORS attribute type	HP Quality Center field type
Date	Date
DXL Attribute Rational DOORS must be the owner.	String
Integer	Number

Rational DOORS attribute type	HP Quality Center field type
<p>Multi-valued attributes</p> <p>Rational DOORS must be the owner.</p>	<p>String</p> <p>Multi-valued attributes are represented in HP Quality Center as a comma separated list.</p>
<p>Real</p>	<p>String</p>
<p>Single-value enumeration</p> <p>The name of the lookup list to which you are mapping the enumeration must be added to the enumeration as a value.</p>	<p>Lookup list</p> <p>The Verify value check box must be selected.</p> <p>You can also map to a string or a memo type.</p> <p>Note When you map a lookup list, make sure that the choices in the lookup list are equal to, or a subset of, the choices available in the single-value enumeration.</p>
<p>String</p> <p>If Rational DOORS is the owner, rich text markup and OLE objects are not copied to HP Quality Center. The attribute may be truncated in HP Quality Center.</p>	<p>String or memo</p> <p>If HP Quality Center is the owner, the attribute value is displayed in Rational DOORS in plain text.</p>

Rational DOORS attribute type	HP Quality Center field type
<p>Text</p> <p>If Rational DOORS is the owner, rich text markup and OLE objects are not copied to HP Quality Center. The attribute may be truncated in HP Quality Center.</p> <p>The Rational DOORS Object text attribute cannot be mapped to the HP Quality Center string attribute. Object text can only be mapped to the HP Quality Center memo attribute type.</p> <p>If Rational DOORS is the owner, OLE objects are not copied to the HP Quality Center memo attribute type.</p>	<p>String or memo</p> <p>If HP Quality Center is the owner, the attribute value of string type is displayed in Rational DOORS in plain text.</p> <p>Note You may have to increase the default size of string fields in HP Quality Center from 40 to 255 characters.</p> <p>If HP Quality Center is the owner, text color in a memo type is not copied to Rational DOORS. Attribute values of memo type are stored and displayed as HTML.</p> <p>Note HP Quality Center only allows five user-defined memo fields in each entity. If you want to map more than five text attributes, map to string field types.</p>

The **Test name** field in the TEST entity in HP Quality Center cannot be empty and cannot contain any of the following characters:

- Quotation marks (" ")
- Angle brackets (< >)
- Colons (:)
- Commas (,)
- Forward slash (/)
- Back slash (\)
- Question mark (?)
- Bar (|)
- Asterisk (*)
- Percent sign (%)

If you map a Rational DOORS attribute to the **Test name** field and Rational DOORS is the owner of the attribute and the controlling application, you must

ensure that the Rational DOORS attribute does not contain any of those characters.

If Rational DOORS is the controlling application for the TEST entity, tests are not synchronized to a folder, and are only visible in grid view.

If you map a Rational DOORS attribute to an entity in HP Quality Center that was created during the mapping process, and then synchronize, the new entity is not displayed in HP Quality Center until you log out and log back into HP Quality Center.

5

Synchronizing data

- Understanding object synchronization
- Understanding link synchronization
- Synchronizing data from the administration console
- Synchronizing data from Rational DOORS
- Creating traceability columns

Understanding object synchronization

When you run a synchronization task, information is updated according to the rules defined in the task. So objects or elements are created and deleted to match the controlling application, and attribute values are updated to match the value for the owner of each attribute. Information in Rational DOORS tables is not included in a synchronization.

Note Read-only objects in Rational DOORS cannot be updated by a synchronization.

For example, if you have a synchronization task where Rational DOORS is the controlling application, and the owner of attributes A, B and C and HP Quality Center is the owner of attribute D, when you synchronize the task:

- Elements are created in HP Quality Center to match objects that have been created in Rational DOORS
- Elements are deleted from HP Quality Center if they were originally created in Rational DOORS and the corresponding object in Rational DOORS no longer exists
- The values stored in attributes A, B and C are copied from Rational DOORS to HP Quality Center
- The values stored in attribute D are copied from HP Quality Center to Rational DOORS

Note If a parent object in the controlling application is deleted and the corresponding object in the receiving application has a child that is not part of the task you are synchronizing, the parent object is not deleted in the receiving application.

If a synchronization task contains a Rational DOORS column displaying a DXL attribute, the data for the attribute will be synchronized to HP Quality Center the first time the synchronization task is run. Subsequent synchronizations will not update the attribute in HP Quality Center unless the objects have been modified in Rational DOORS since the last synchronization. This is because refreshing DXL attributes does not change the modified date of an object.

A synchronization schedule is defined for each synchronization task when it is created, and the synchronization task is automatically run according to that schedule. Tasks can also be synchronized manually from Rational DOORS or the administration console.

It is important that an appropriate synchronization schedule is defined, so that Analysts and QA/Testers can be confident that they are working with accurate and up-to-date information.

Note If you are going to synchronize large tasks, the HP Quality Center client timeout setting should be set to either a high value or -1 value. If a small value is used, the HP Quality Center client being used for the synchronization could timeout before it is finished.

Understanding link synchronization

When you run a TEST synchronization task, links from tests to requirements that are included in the synchronization task are also synchronized. This means that links between objects in Rational DOORS are replicated between the corresponding elements in HP Quality Center when a synchronization task that includes the source objects is run. Similarly, associations between elements in HP Quality Center are replicated between the corresponding objects in Rational DOORS when a synchronization task that includes the source elements is run.

Links are not copied during a synchronization if they:

- Go in the opposite direction than specified above, for example links from requirements to tests.
- Are between objects or elements in the same task, for example links between requirements in a task.
- Are between objects or elements other than those specified above, for example links between tests and test sets.

Which application controls the creation and deletion of links?

There is no controlling application for the creation and deletion of links. As long as a link conforms to the rules for link synchronization it will be synchronized when the synchronization task is run:

- If a link or association is created in one database and the corresponding objects exist in the other database, the link will be created when the synchronization task is run.
- If a link or association that has been created as a result of a previous synchronization is deleted in either database, the corresponding link will be deleted when the synchronization task is run.
- If a synchronized link is independently deleted in both databases, and a new link is created in one database, that link will be deleted by a synchronization.

What happens when a linked object is deleted?

If an object that has a synchronized link is deleted from the database of the controlling application for the entity, running the synchronization task has the following effect:

- The corresponding object in the other database is deleted.
- The previously synchronized link is deleted.

If an object that has a synchronized link is deleted from the database that is not the controlling application for the entity, the link is also deleted. However, because a synchronization recreates the object, this indirect link deletion is invalid, so the corresponding link in the controlling application is not deleted. When the synchronization task is run, the object that was deleted is recreated along with the link.

Synchronizing data from the administration console

The administration console is the recommended application to use when you want to synchronize data. Only use Rational DOORS to synchronize when you do not have access to the administration console.

For information about how to synchronize data using the administration console see the console's online help.

Note In some cases, after upgrading Rational DOORS, if you attempt to validate synchronization tasks in the administration console, the Rational DOORS client opens for each task. If you do not log in each time, the validation fails. To resolve this problem, run the Set Access Permissions

wizard. Then select the **Modify** option in the administration console and test the connection to the Rational DOORS data.

Synchronizing data from Rational DOORS

In a Rational DOORS module, you can run a single synchronization task, or all of the synchronization tasks that are associated with the module.

Note Once the synchronization has been started, it cannot be cancelled. Clicking the **Cancel** button at any stage does not stop the synchronization.

To run a single synchronization task:

1. In the Rational DOORS module window, click **DOORSConnect > Quality Center > Synchronize > Synchronize Task**.

A dialog box containing a list of all the synchronization tasks associated with the current module is displayed.

2. Select the synchronization task, and click **Sync**.

A **Link Synchronization** dialog box is displayed.

3. Click **Objects and Links** or **Objects only**.

A message stating that the module's edit mode is being changed to read only is displayed.

4. Click **OK**.

Objects and optionally links in Rational DOORS and HP Quality Center are synchronized according to the synchronization task mapping information.

When the synchronization is complete, a report is generated. This contains details of:

- Objects and elements that have been created
- Objects and elements that have been deleted
- Objects and elements that have been modified
- Links that have been created
- Links that have been deleted
- Any errors or warnings that were generated

5. Change back to exclusive edit mode to see any updates that have been made by the synchronization.

To run all synchronization tasks:

1. In the Rational DOORS module window, click **DOORSConnect > Quality Center > Synchronize > Synchronize All Tasks**.

A confirmation dialog box is displayed.

2. Click **Confirm** to run all the synchronization tasks associated with the module.

A **Link Synchronization** dialog box is displayed.

3. Click **Objects and Links** or **Objects only**.

A message stating that the module's edit mode is being changed to read only is displayed.

4. Click **OK**.

Objects and optionally links in Rational DOORS and HP Quality Center are synchronized according to the synchronization task mapping information.

When the synchronization is complete, a report is generated. This contains details of:

- Objects and elements that have been created
- Objects and elements that have been deleted
- Objects and elements that have been modified
- Links that have been created
- Links that have been deleted
- Any errors or warnings that were generated

5. Change back to exclusive edit mode to see any updates that have been made by the synchronization.

Creating traceability columns

You can create traceability columns that display information about links that have been synchronized as part of a synchronization task. Only links that satisfy the criteria for link synchronization can be analyzed in a traceability column. For more information see "Understanding link synchronization," on page 38.

To create traceability columns:

1. In the Rational DOORS module window, click **DOORSConnect > Quality Center > Create Traceability Column**.

This runs the **Task Traceability Analysis wizard**.

2. Click **Next** on the Welcome screen.
3. Select the tasks and the direction of the links you want to analyze.

4. Click **Next**.
5. Select the attributes you want to display in the traceability column for each selected task.
Click **Next** and repeat this step for each task selected in the previous step.
6. On the **Recursion Depth** screen, type the number of traceability columns you want to display.
7. Click **Next**.
8. Click **Finish**.

The traceability columns are added to your view.

6

Creating SoQ Attributes

- Understanding SoQ Attributes
- Creating the SoQ Value Attribute
- Creating the SoQ Defect Attribute
- Creating the SoQ Report Attribute

Understanding SoQ Attributes

Statement of Quality (SoQ) attributes provide three levels of reporting against qualification criteria that have been integrated with HP Quality Center through requirement and test tasks:

- SoQ Value
- SoQ Defect
- SoQ Report

They enable the analyst to see varying degrees of detail about the test status of the project at milestones in the project.

SoQ value attributes cannot be calculated unless the requirements and tests that verify them have been included in synchronization tasks, and those synchronization tasks have been run at least once. SoQ attributes will only display results for the tests that are associated with the requirements in the synchronization task.

You create the SoQ Value attribute in the Rational DOORS Requirements module.

Note The Qualification Attribute menu options are only displayed in modules that are mapped to the REQUIREMENTS entity in HP Quality Center through a synchronization task.

Understanding the SoQ Value attribute

The SoQ Value attribute provides information about the status of the tests in HP Quality Center that are associated with requirements, and that are included in synchronization tasks that have been run by the integration. Each Rational DOORS requirement is checked for associated TESTS in HP Quality Center, and where associated tests are found, it displays results from the latest run of the

test set you select. For each requirement one of the following values will be displayed in the SoQ Value attribute:

SoQ Value of...	Means...
No coverage	There are no TEST elements associated with the Rational DOORS requirements.
Failed	There is at least one TEST element associated with the Rational DOORS requirement that has been run and has a verdict of Failed .
Not-run	Each TEST element associated with the Rational DOORS requirement has a verdict of either Not-run , Passed or N/A .
Not-completed	At least one TEST element associated with the Rational DOORS requirement has a verdict of Not-completed .
N/A	All TEST elements associated with the Rational DOORS requirement have a verdict of N/A .
Qualified	All of the TEST elements associated with the Rational DOORS requirement have been run and have a verdict of Passed or N/A .

SoQ values are propagated up through the requirements hierarchy. So if a Rational DOORS object has children, the SoQ value of the child object is considered when the SoQ value of the parent is calculated. For example, if the SoQ value of a child object is **Not-completed**, the SoQ value that is reported to the analyst for the parent object is **Not-completed**. The analyst can navigate through the hierarchy to see which child object has the value **Not-completed**, and can determine the business impact of that result.

If any descendant of an object has an SoQ value of **No coverage**, the parent object will also have an SoQ value of **No Coverage**. If that object also has a descendant with an SoQ value of **Failed**, the SoQ value of the parent will be **Failed**, not **No Coverage**.

Understanding the SoQ Defect attribute

The SoQ Defects attribute displays the same information as the SoQ Value attribute for all attribute values except **Failed**. Where an SoQ Value is **Failed**, the integration will retrieve and display defects that have been raised against, or

associated with, tests that are associated with the Rational DOORS requirement and that have failed in the latest run of the test set you selected.

There are several ways to create associations between defects and runs in HP Quality Center. Defects that are associated in the ways described below are displayed when the SoQ Defect attribute is calculated.

Using HP Quality Center functionality, you can create an association between a defect and a run in one of two ways:

- When you run a test, and it fails, you raise a defect. HP Quality Center records the RUN in the DEFECT. As the defect is associated with a particular run, it cannot be associated with any other test. So, if a single defect is the reason why two different tests have failed, you have to raise two identical defects, one for each failed run. When you calculate the SoQ defect attribute, all of the defects that are associated with failed runs are displayed.
- Alternatively, some HP Quality Center users work around this limitation by customizing HP Quality Center. They create an attribute in the RUN entity, and use this customization to record the defect ID of the defect that has caused the test to fail. This means that one defect can be associated with numerous runs. If this is the way that you associate defects with runs in HP Quality Center, you must provide the name of the attribute that you use to record the defect ID when you create the SoQ Defect attribute, or those defects will not be displayed when the SoQ Defect attribute is calculated. You do this by selecting the attribute name from the **Attribute as Defect ID** list on the SoQ Defect dialog box.

Understanding the SoQ Report

The SoQ Report displays the same information as the SoQ Defects attribute, along with a summary of how elements of type TEST are associated with the Rational DOORS requirement, and gives the verdicts from the SoQ Value that have resulted in the value that is reported.

Creating the SoQ Value Attribute

1. In the Rational DOORS module window, click **DOORSConnect > Quality Center> Qualification Attribute > SoQ Value**.

Note You need modify access to the module.

2. Type a name in **Attribute Name**.

The prefix `SoQValue_` is automatically added to the name. For example, if you enter **Attribute**, the attribute will be named `SoQValue_Attribute`.

3. Select the synchronization task that defines the requirements for which you want to calculate SoQ attributes from the **Task** drop-down list.
4. Select a Test Set from the **Test set** drop-down list.
5. Click **Calculate**.

If the module is open in either read-only or shareable edit mode, it will be changed to exclusive edit mode before starting the calculation.

Creating the SoQ Defect Attribute

1. In the Rational DOORS module window, click **DOORSConnect > Quality Center > Qualification Attribute > SoQ Defects**.

Note You need modify access to the module.

2. Enter a name in **Attribute Name**.

The prefix `SoQDefect_` is automatically added to the name. For example, if you enter **Attribute**, the attribute will be named `SoQDefect_Attribute`.

3. Select the synchronization task that defines the requirements for which you want to calculate SoQ attributes from the **Task** drop-down list.
4. Select a Test Set from the **Test set** drop-down list.
5. The **Attribute as Defect Id** list is populated with attributes from the RUN entity in HP Quality Center. If you have created an attribute in the RUN entity where you can enter the Defect ID of any associated defect manually, select that attribute from the list. Those defects will also be included in the SoQ Defect attribute. For more information about this option, see “Understanding the SoQ Defect attribute,” on page 44.
6. Select attributes to display in the SoQ Defect attribute from the **Defect Attributes** list.
 - To save the attribute configuration for use later, click **Save**. Browse to the folder, and click **Save**.
 - To load a configuration that you have saved previously, click **Load**. Browse to the folder that contains the configuration file, and click **Load**.
7. Click **Calculate**.

The SoQ defect value for each object in the task is calculated.

Creating the SoQ Report Attribute

1. In the Rational DOORS module window, click **DOORSConnect > Quality Center > Qualification Attribute > SoQ Report**.

Note You need modify access to the module.

2. Follow the instructions in “Creating the SoQ Defect Attribute,” on page 46, Step 2 to Step 6.
3. Click **Calculate**.

The SoQ report value for each object in the task is calculated and displayed in table format. The table summarizes how elements of type TEST are associated with the Rational DOORS object.

7

Turning logging on and off

Note This section is for reference, and steps should only be performed when requested by Rational DOORS support.

Rational DOORS for HP Quality Center Interface is installed with logging turned off by default. To turn logging on, you need to open the registry for editing and then edit the following values in the registry:

- `LogLevel`
This value determines what actions are recorded in the log file.
- `LogPath`
This value determines the location of the log file.

Turning on logging

To turn on logging:

1. Open the Registry Editor.

Click **Start > Run**, type `regedit`, and click **OK**.

Note You must be logged on as an administrator or a member of the Administrators group in order to perform this procedure.

2. Navigate to the following registry subkey:

`HKEY_LOCAL_MACHINE\SOFTWARE\Telelogic\TDIntegration\WebService\`

3. Select the string value `LogLevel`, and double-click.

If the string value does not already exist, right-click **New > String Value** and enter `LogLevel`.

The **Edit String** window is opened.

4. Enter the value provided by support in the **Data** field and click **OK**.

5. Select the string value `LogPath`, and double-click.

If the string value does not already exist, right-click **New > String Value** and enter `LogPath`.

The **Edit String** window is opened.

6. Enter a location in the **Value data** field and click **OK**.

The default location for `LogPath` is `IWS_Logs` in the home directory of the web service. The log file is named `IWS-<timestamp>.log`, where `<timestamp>` is a UTC milliseconds timestamp.

7. Select **Registry > Exit** to close the registry.

Logging is switched on, and the location of the log file is set.

Clearing old log files

If you switch on logging, each time the `aspnet_wp.exe` process restarts, a new log file is created. Clear out old log files regularly, otherwise the performance of your system may be adversely affected.

Navigate to the folder containing the log files, and delete any obsolete log files.

Turning off logging

To turn off logging:

1. Open the Registry Editor.

Click **Start > Run**, type `regedit`, and click **OK**.

Note You must be logged on as an administrator or a member of the Administrators group in order to perform this procedure.

2. Navigate to the following registry subkey:

`HKEY_LOCAL_MACHINE\SOFTWARE\Telelogic\TDIntegration\WebService\`

3. Select the string value `LogLevel`, and double-click.

The **Edit String** window is opened.

4. Enter `0` in the **Value data** field and click **OK**.

Logging is switched off.

8

Troubleshooting

You can resolve common problems associated with the configuration and operation of the Rational DOORS for HP Quality Center Interface.

Security policies

Windows security policies, such as “Deny Log on as Service,” “Deny logon locally,” and “Impersonate client after authentication,” can prevent users from logging in and registering processes.

In the Windows Control Panel, click **Administrative Tools > Local Security Policy**. In the Local Security Setting window, click **Security Settings > Local Policies > User Rights Assignment**.

The following policies can cause problems:

- **Deny log on as Service:** Determines which service accounts are prevented from registering a process as a service.
- **Deny log on locally:** Determines which users are prevented from logging on to the computer.
- **Log on as a service:** Determines which service accounts can register a process as a service.
- **Log on locally:** Determines which users can log on to the computer.

If a user does not belong to the **Log on as service** and **Log on locally** policies, then that user cannot register a process as a service and start the service. As a result, the user cannot register and start the Rational DOORS for HP Quality Center Interface Timer Service.

Local Administrator users belong to **Log on as a service** and **Log on locally** policies. Use local Administrator user credentials for the Set Access Permissions configuration tool. Local Administrator users can register and start the Timer Service.

Configuration tool problems

Windows directory access

On Windows 2008 64-bit server, TrustedInstaller owns the Windows directory and subdirectories. The Set Access Permissions configuration tool might fail on

these folders. Unlike Windows Server 2003, manually adding the IWUSER to failing folders does not resolve the problem.

In Windows Server 2008 32/64 Bit .Net Framework v2.0.50727, the Administrators Group is installed and granted security permission by default. Users might not be able to provide access permission in the Set Access Permission configuration tool or in the .Net Framework v2.0.50727 user interface. To avoid these permission problems, use local Administrator user credentials for the configuration tool.

TDI services configuration failure

When testing the TDI services in the Set Access Permission configuration tool, an error 401 (unauthorized) might occur. To resolve this problem, try the following fixes:

- Enable ASP.NET impersonation for web site. In the web.config file in the doorstdiservices folder, add the following entries:

```
</compilation>  
<trust level="Full" />  
http://support.microsoft.com/kb/942043/
```
- Add .asmx as a registered MIME type (text/plain) in Internet Information Services (IIS) 7.
- Enable Windows Authentication in IIS:

To enable Windows Authentication in IIS 6:

1. Start IIS Manager or open the IIS snap-in.
2. Expand server_name, where server_name is the name of the server, and then expand **Web Sites**.
3. In the console tree, right-click the **Default Web Site**, and then click **Properties**.
4. In Properties window, click the **Directory Security** or **File Security** tab. Under **Authentication and access control**, click **Edit**.
5. In the **Authenticated access** section, select the **Windows Integrated Authentication** check box.
6. Click **OK** twice.

To enable Windows Authentication in IIS 7:

1. Start IIS Manager or open the IIS snap-in.

2. Expand `server_name`, where `server_name` is the name of the server, and then expand **Sites**.
3. In the console tree, right-click the **Default Web Site**. If **Content View** is shown in right panel, click **Switch to Features View**.
4. Double-click **Authentication**.
5. Right-click on **Windows Authentication** and select **Enable**.
6. Close IIS Manager

SOQ web service configuration failure

The Server configuration page of the Set Access Permission configuration tool might fail and display a red exclamation mark or the following error:

Configuring SOQ Webservice

Failure - System.Runtime.InteropServices.COMException (0x80040154): Retrieving the COM class factory for component with CLSID {A440BD76-CFE1-4D46-AB1F-15F238437A3D} failed due to the following error: 80040154.

To resolve these problems, register the `capicom.dll` file:

1. In Windows, click **Start > Run**.
2. Type: `regsvr32 <capicom.dll path>`
For example, `regsvr32 "C:\Windows\system 32\capicom.dll"`

If the `capicom.dll` file does not exist in `C:\Windows\System32`, download it from the Microsoft Support web site and place it in `C:\Windows\System32`.

Connection failure

If the HP Quality Center Connectivity add-in is not installed, the connection to HP Quality Center fails and displays the error: `Data provider failed to initialize`. In this case, the user can access the Quality Center directly, but the test connection fails.

To resolve this problem, register the HP ALM client.

To register HP ALM for HPQC10:

1. Open Internet Explorer and browse to the HPQC10 URL at `http://<QCServerName:8080>/qcbn/`
2. Click the **Add-Ins** page link. The HP ALM Add-Ins page opens in new Internet Explorer window.
3. Click the **HP Quality Center Connectivity** link.

4. After the link opens, open this URL:

`http://<QCServerName:8080>/qcbn/start_a.htm?common=true`

To register HP ALM for HPQC11/ 11.50:

1. Open Internet Explorer and browse to the HPQC 11/11.50 URL:

`http://<QCServername:8080>/qcbn/`

- 2. Click the **Add-Ins** page link.** The HP ALM Add-Ins page opens in new Internet Explorer window.
- 3. Click the **HP Quality Center Connectivity** link.**
- 4. Click the **HP ALM Client Registration** link.**
- 5. Click the **Register HP ALM Client** and **Register HP ALM Site Administration Client** links, one at a time.**

Gathering the virtual folder structure

On the “Gathering the virtual folder structure” page of the Set Access Permission configuration tool, sometimes the hostname/IWSUSER account is displayed in the **Web Site** field, rather than the default web site. If you hover over the red exclamation point, an error is displayed: `Unable to locate services within the specified Web Site.`

Active Directory (AD) is used to fetch web site details. Local Administrator users have permission and access in all directories. Use local Administrator credentials for Set Access Permissions. Users that do not have these credentials are not able to fetch desired default web site details.

IIS must include the .asm MIME type

MIME is a standard that classifies resources and provides information to programs about how to handle them. This allows the correct handling and interpretation of different type files by programs.

To ensure that the configuration tool has access to .asm files and can successfully complete the configuration, add the .asm MIME type to Internet Information Services (IIS).

To add the .asm MIME type in IIS 6:

- 1. Open IIS Manager and open the properties of the IIS node.**
- 2. Click **MIME Types**, and click **New**.**
- 3. Use the following values:**
Extension: `.asm`
MIME Type: `text/plain`

4. Click OK.

To add the .asm MIME type in IIS 7:

1. Open IIS Manager and select the IIS node.
2. Double-click **MIME Types** on the right pane.
3. Click **Add**.
4. Use the following values:
Extension: .asm
MIME Type: text/plain
5. Click **OK**.

You can find MIME Type details at <http://support.microsoft.com/kb/936496>.

Timer Service problems

The Timer Service for Rational DOORS for HP Quality Center Interface might encounter configuration problems based on a security policy setting.

To verify that the configuration user is not listed in the **Deny log on as service** security policy:

1. Click **Control Panel > Administrative Tools > Local Security Policy**.
2. In the Local Security Policy window, in **Security Settings**, click **Local Policies > User Rights Assignments**.
3. Double-click **Deny log on as a service**.

Test connection fails after upgrade

After you upgrade Rational DOORS, the connection test in the configuration tool might fail. This occurs because some files that are required for the Rational DOORS for HP Quality Center Interface, such as .dxl and .inc files, are not copied to the upgraded installation.

An error is displayed: The data provider failed to initialize.

The log file contains the following entry:

```
"Could not start DOORS.: -E- DXL: <C:\Program
Files\IBM\Rational\DOORS\9.5\lib\dxl\batchStartupFiles\tdintegr
ationBatchStartup.inc:13> could not open include file
(addins\doorstdint\startup.inc) (No such file or directory)"
```

To resolve this problem, uninstall Rational DOORS for HP Quality Center Interface and reinstall it, so all the required files are installed in the folder structure.

9

Contacting support

This chapter contains the following topics:

- Contacting IBM Rational Software Support
- Prerequisites
- Submitting problems
- Other information

Contacting IBM Rational Software Support

If the self-help resources have not provided a resolution to your problem, you can contact IBM Rational Software Support for assistance in resolving product issues.

Note If you are a heritage Telelogic customer, you can go to <http://support.telelogic.com/toolbar> and download the IBM Rational Telelogic Software Support browser toolbar. This toolbar helps simplify the transition to the IBM Rational Telelogic product online resources. Also, a single reference site for all IBM Rational Telelogic support resources is located at <http://www.ibm.com/software/rational/support/telelogic/>

Prerequisites

To submit your problem to IBM Rational Software Support, you must have an active Passport Advantage® software maintenance agreement. Passport Advantage is the IBM comprehensive software licensing and software maintenance (product upgrades and technical support) offering. You can enroll online in Passport Advantage from <http://www.ibm.com/software/lotus/passportadvantage/howtoenroll.html>.

- To learn more about Passport Advantage, visit the Passport Advantage FAQs at http://www.ibm.com/software/lotus/passportadvantage/brochures_faqs_quickguides.html.
- For further assistance, contact your IBM representative.

To submit your problem online (from the IBM website) to IBM Rational Software Support, you must additionally:

- Be a registered user on the IBM Rational Software Support website. For details about registering, go to <http://www-01.ibm.com/software/support/>.
- Be listed as an authorized caller in the service request tool.

Submitting problems

To submit your problem to IBM Rational Software Support:

1. Determine the business impact of your problem. When you report a problem to IBM, you are asked to supply a severity level. Therefore, you need to understand and assess the business impact of the problem that you are reporting.

Use the following table to determine the severity level.

Severity	Description
1	The problem has a <i>critical</i> business impact: You are unable to use the program, resulting in a critical impact on operations. This condition requires an immediate solution.
2	This problem has a <i>significant</i> business impact: The program is usable, but it is severely limited.
3	The problem has <i>some</i> business impact: The program is usable, but less significant features (not critical to operations) are unavailable.
4	The problem has <i>minimal</i> business impact: The problem causes little impact on operations or a reasonable circumvention to the problem was implemented.

2. Describe your problem and gather background information. When describing a problem to IBM, be as specific as possible. Include all relevant background information so that IBM Rational Software Support specialists can help you solve the problem efficiently. To save time, know the answers to these questions:

- What software versions were you running when the problem occurred?

To determine the exact product name and version, use the option applicable to you:

- Start the IBM Installation Manager and click **File > View Installed Packages**. Expand a package group and select a package to see the package name and version number.
 - Start your product, and click **Help > About** to see the offering name and version number.
 - What is your operating system and version number (including any service packs or patches)?
 - Do you have logs, traces, and messages that are related to the problem symptoms?
 - Can you recreate the problem? If so, what steps do you perform to recreate the problem?
 - Did you make any changes to the system? For example, did you make changes to the hardware, operating system, networking software, or other system components?
 - Are you currently using a workaround for the problem? If so, be prepared to describe the workaround when you report the problem.
3. Submit your problem to IBM Rational Software Support. You can submit your problem to IBM Rational Software Support in the following ways:
- **Online:** Go to the IBM Rational Software Support website at <https://www.ibm.com/software/rational/support/> and in the Rational support task navigator, click **Open Service Request**. Select the electronic problem reporting tool, and open a Problem Management Record (PMR), describing the problem accurately in your own words.

For more information about opening a service request, go to <http://www.ibm.com/software/support/help.html>.

You can also open an online service request using the IBM Support Assistant. For more information, go to <http://www-01.ibm.com/software/support/isa/faq.html>.
 - **By phone:** For the phone number to call in your country or region, go to the IBM directory of worldwide contacts at <http://www.ibm.com/planetwide/> and click the name of your country or geographic region.
 - **Through your IBM Representative:** If you cannot access IBM Rational Software Support online or by phone, contact your IBM Representative. If necessary, your IBM Representative can open a service request for you. You can find complete contact information for each country at <http://www.ibm.com/planetwide/>.

If the problem you submit is for a software defect or for missing or inaccurate documentation, IBM Rational Software Support creates an Authorized Program Analysis Report (APAR). The APAR describes the problem in detail. Whenever possible, IBM Rational Software Support provides a workaround that you can implement until the APAR is resolved and a fix is delivered. IBM publishes resolved APARs on the IBM Rational Software Support website daily, so that other users who experience the same problem can benefit from the same resolution.

Other information

For Rational software product news, events, and other information, visit the IBM Rational Software website on <http://www.ibm.com/software/rational/>.

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