

ClearTrace™ for DOORS Administration Guide



This document applies to ClearTrace™ for DOORS version 1.4.195

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Legal Notices

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Trademarks

ClearQuest and Rational are registered trademarks of International Business Machines Corporation (IBM) in the United States, other countries, or both. DOORS is a registered trademark of Telelogic AB.

Third Party Notices

Per DOD FAR SUP 252.225-7000 definitions, this product is a United States “domestic end product” and was produced solely in the United States.

Introduction

ClearTrace™ for DOORS is a commercial software system which provides bidirectional access to data, functionality and linking between IBM Rational ClearQuest and Telelogic DOORS.

Details

We chose to describe ClearTrace as a “system” which ties ClearQuest and DOORS together, rather than as a simple mechanism for creating links between the two, because of the way it provides for and maintains access to shared data. Also, it has been designed to provide scalable access to “real world” data volumes which may span multiple databases. Functionality falls into two areas:

Simple, Native Access to Data

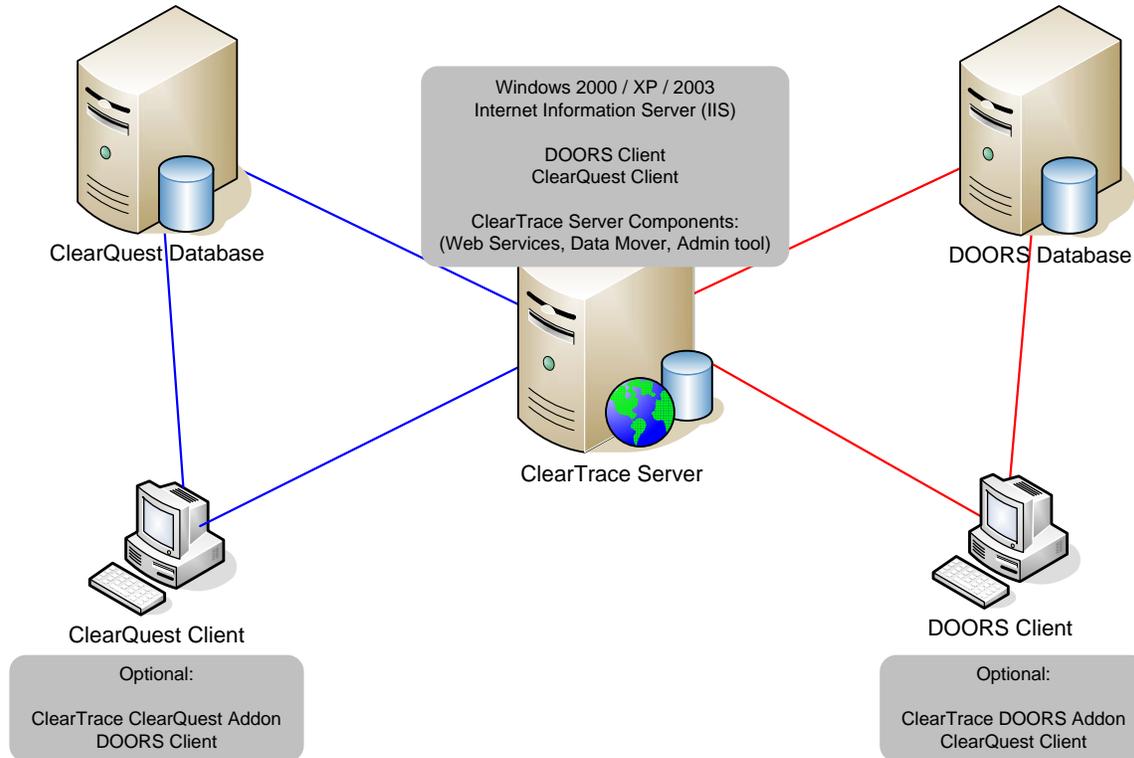
- DOORS contains a read-only copy of ClearQuest data
 - Client access and visibility not dependent on presence of ClearQuest client
 - Available to all DOORS client platforms
 - Utilizes DOORS native linking mechanism: object links
 - Supports DOORS traceability wizard for analysis and reporting
- ClearQuest contains a read-only copy of DOORS data
 - Client access and visibility not dependent on DOORS client
 - Available to all ClearQuest client platforms
 - Scalable visibility – no repetitive client-side loading of DOORS modules
 - Supports visibility of administrator-defined DOORS attributes (v1.3)
 - Utilizes ClearQuest native linking mechanism: record references
 - Supports ClearQuest queries for reporting, association, etc.
 - Supports record “suspicion” when associated DOORS requirements change

Access to Functionality

- DOORS access to ClearQuest functionality
 - Submit new records to ClearQuest, automatically associated with selected DOORS object(s)
 - Associate existing ClearQuest records with selected DOORS object(s)
 - View ClearQuest records
 - Edit ClearQuest records
- ClearQuest access to DOORS functionality
 - Navigate directly to DOORS modules
 - Navigate directly to DOORS requirements
 - View DOORS requirements from ClearTrace server cache

ClearTrace Architecture

ClearTrace™ for DOORS General Architecture



Server Components

- XML Web Services based on Microsoft IIS / ASP.NET
- Administrator application
 - Configuration via simple wizard interfaces
 - Access to logs
- Command-line based data mover / updater
 - Supports manual and automated automation via external scheduler, e.g. Windows Scheduled Tasks
- ClearQuest schema “package”
 - Supports customized or standard ClearQuest database schemas
 - Flexibly supports custom workflow needs

ClearQuest client add-on

- Communicates with XML Web Services to retrieve complete DOORS requirements
- Supports Windows and Eclipse-based clients
- Handles DOORS navigation requests

DOORS client add-on

- Communicates with XML Web Services to retrieve datasets
- Handles native ClearQuest requests (submit, associate, view, edit)

System Requirements

Installation of ClearTrace for DOORS server components requires one of each of the following environments to operate.

Microsoft Windows	IBM Rational ClearQuest	Telelogic DOORS
Windows 2000 Server SP4 or later Windows 2003 Server Windows XP SP1	ClearQuest 2003.06.xx ClearQuest 7.x.xx	DOORS 6.0 or newer
Microsoft Internet Information Server 5.0	ClearQuest group for ClearTrace account	DOORS user account that is exclusive to ClearTrace.
Microsoft .NET Framework 2.0 or later	ClearQuest user account for ClearTrace	
RECOMMENDED: Multi-Core or Multi-Processor Computer		
RECOMMENDED : 2GB+ System Memory		

ClearTrace™ for DOORS must be installed on a machine that has both the Windows-based ClearQuest client installed (to read from and write to ClearQuest) and the Windows-based DOORS client (to read from and write to DOORS.)

Server Installation

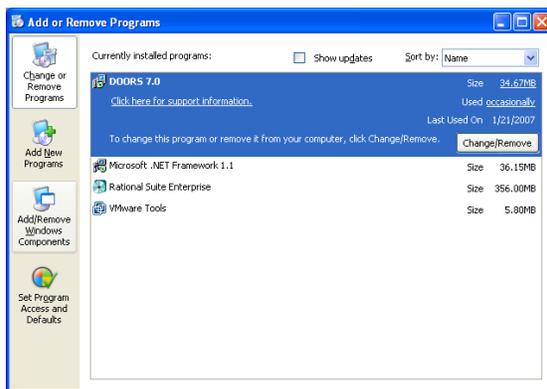
Dependencies – Order is Important!

Microsoft Internet Information Server (IIS) v5.0 or later – this must be installed first, before Microsoft .NET Framework -- Microsoft .NET Framework registers itself with IIS when it is installed. If this suggestion is impossible to follow, you have two other options: (1) uninstall and then reinstall .NET, or (2) follow the Microsoft tech note listed below to understand how to perform manual registration.

If IIS has been installed first, the order of the remaining dependencies is inconsequential, in terms of ClearTrace functionality.

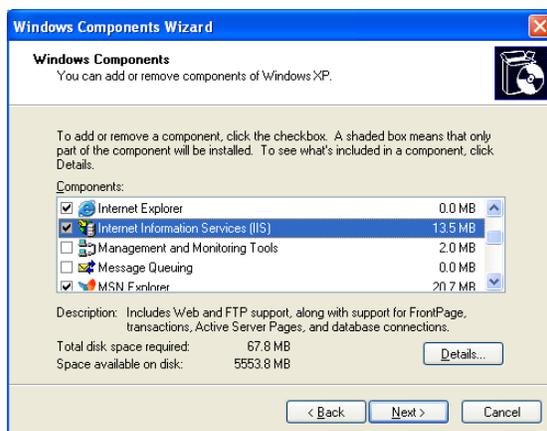
Microsoft .NET Framework v2.0 or later
 IBM Rational ClearQuest Client, v2003.xx or v7.0
 Telelogic DOORS Client, v6.0 or later

Microsoft Internet Information Server (IIS) v5.0 or later

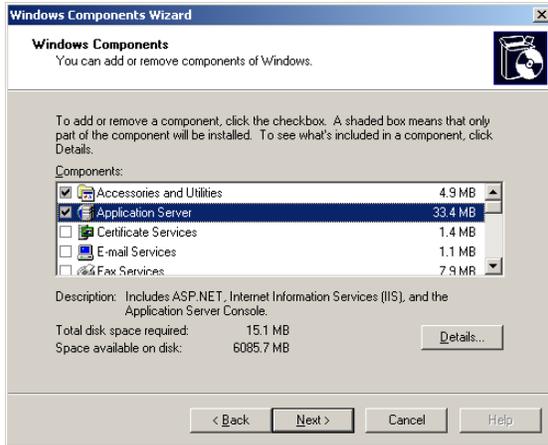


If it is not already installed, Microsoft IIS can be found on your Windows install CD. You can add it via the Windows Control Panel, Add/Remove Windows Components.

It is preferable to install IIS before Microsoft .NET Framework so that .NET is registered properly within IIS.



Under Windows XP, Microsoft IIS is listed as Internet Information Services (IIS).



Under Windows Server 2003, Microsoft IIS is part of the item “Application Server”.

You must select an optional component necessary, ASP.NET, located by clicking the Details... button.

If IIS is installed after the .NET Framework or not registered properly with IIS, consult the following Microsoft Knowledge Base Article:

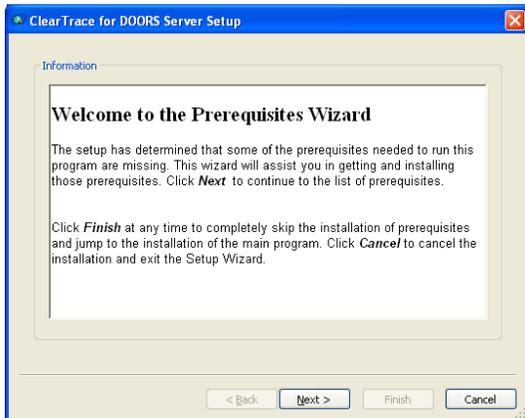
<http://support.microsoft.com/kb/325093>

A utility for registering ASP.NET with IIS ships with the .NET Framework. The utility is `aspnet_regiis.exe`, can be found in the following directory:

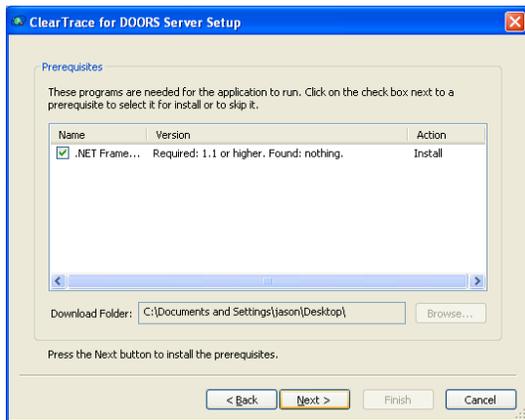
```
% WindowsDir% \Microsoft.NET\Framework\{version}\
```

This utility should be called with the `-i` parameter, e.g. `aspnet_regiis.exe -i`.

Microsoft .NET Framework v2.0 or later



If Microsoft .NET Framework v2.0 or later is not installed, the ClearTrace Server installer will display a Prerequisites Wizard dialog.



The Prerequisites Wizard will direct you to the appropriate download page on the Microsoft web site.

IBM Rational ClearQuest Client, v2003.06.xx, v7.0

Consult your IBM Rational documentation for instructions.

Telelogic DOORS Client, v7.0 or later

Consult your Telelogic DOORS documentation for instructions.

Configure Licensing

ClearTrace uses Macrovision FLEXlm for licensing. It is suggested to copy your license file to the “licenses” folder beneath the ClearTrace installation folder. Your license can also be installed by following the steps below.

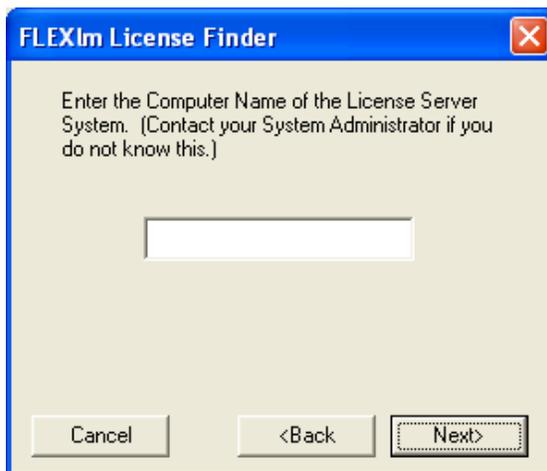


Start the ClearTrace Administrator application.

The FLEXlm license License Finder will appear.

If you have a permanent license for ClearTrace, select “License Server System”. Or, if you are evaluating ClearTrace, choose the “License File” option.

Click Next to continue.



If you selected “License Server System”, enter your license server information.

This information must be specified as: port@hostname

(The default port is 28282).

Click Next to continue.



If you selected “License File”, browse to your license file or enter it directly.

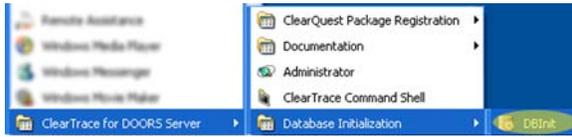
Click Next to continue.



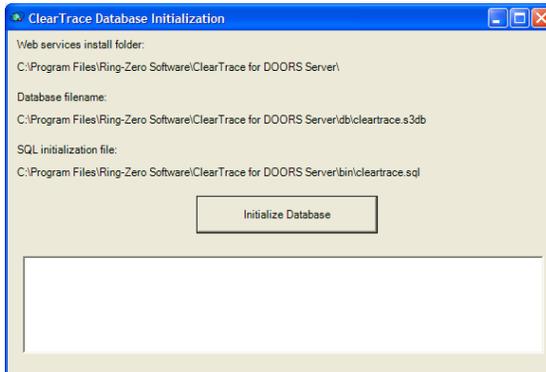
Once licensing has been configured,

Click Finish to continue.

Initialize the ClearTrace Database

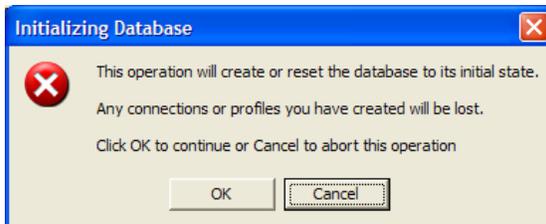


Run DBInit, located in the ClearTrace for DOORS Server folder on the Windows Start Menu.



Click the Initialize Database button.

This is a destructive operation if you already have an existing ClearTrace database configured, and will remove any connections, profiles, and logs contained in your database!



Click OK on the confirmation dialog.

Verification Step – Check Web Services

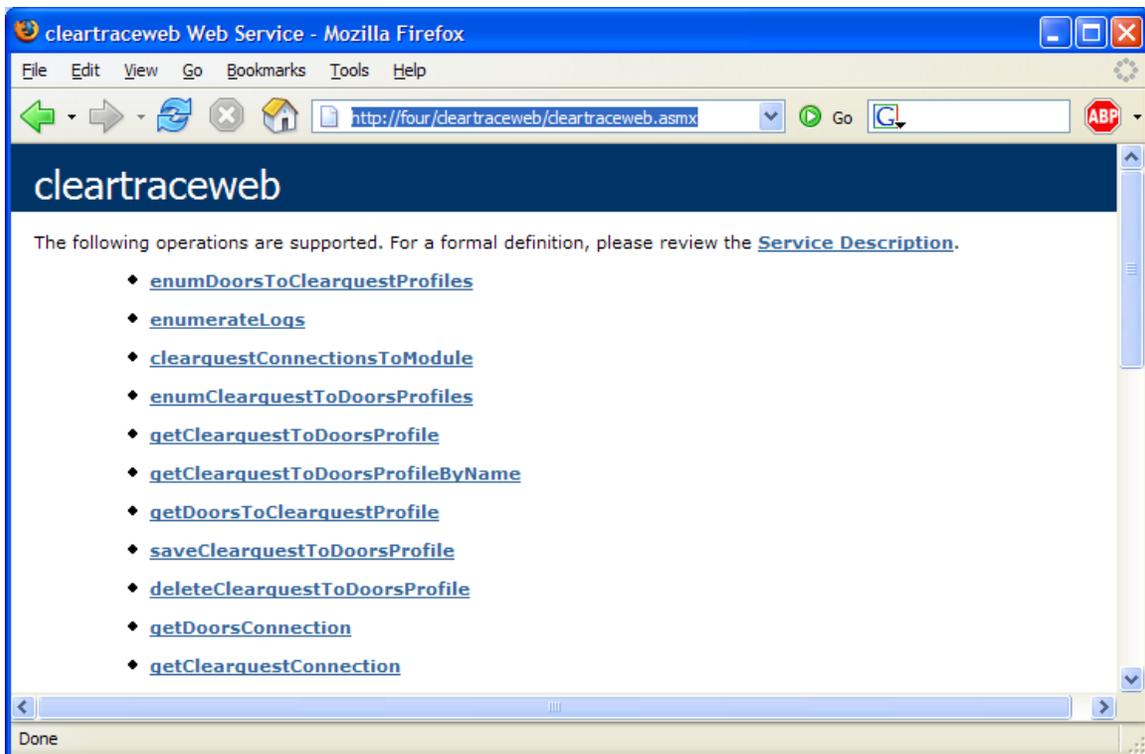
In your web browser, verify ClearTrace web services by browsing to:

`http://{computer}/cleartraceweb/cleartraceweb.asmx`

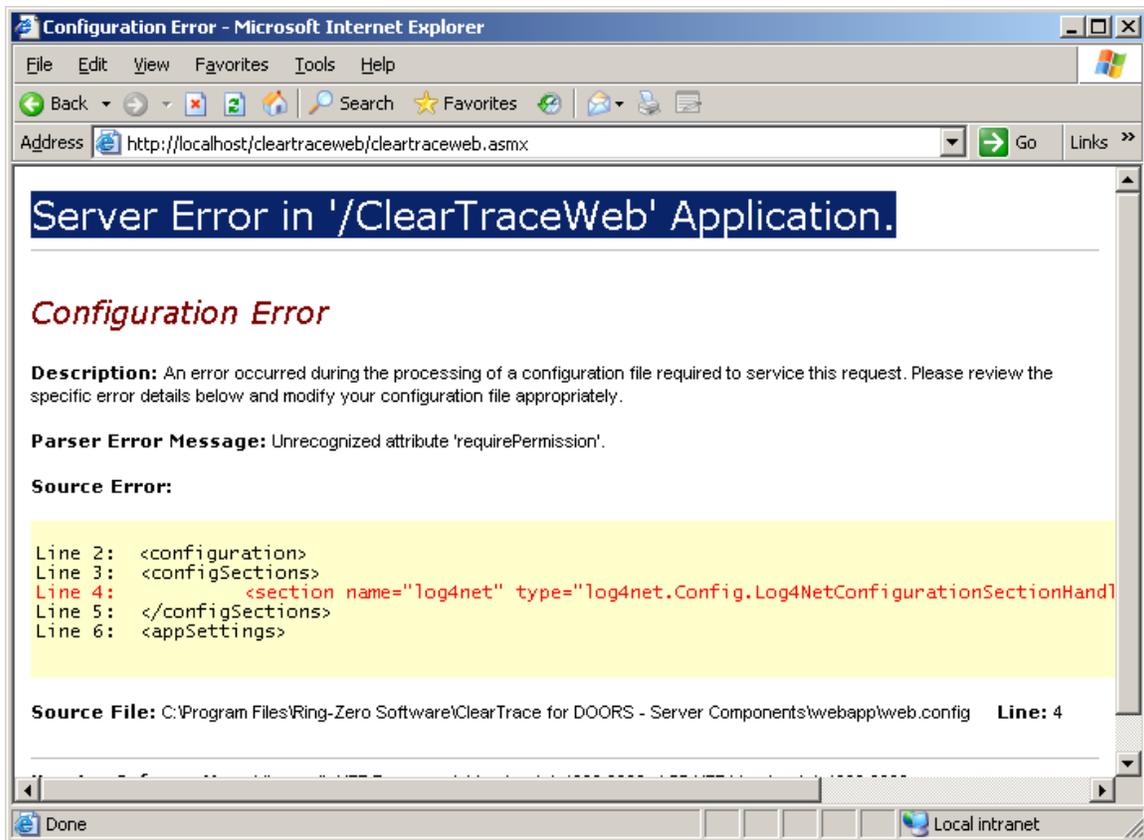
If your installation of IIS is configured to use a non-standard HTTP port, you may need to specify the port number as well.

`http://{machine:port}/cleartraceweb/cleartraceweb.asmx`

If a web page similar to the one depicted below appears, web services have been configured correctly.



If a server error similar to the one depicted below is displayed, the ClearTrace web service is configured to use ASP.NET 1.1 when it should be using ASP.NET 2.0.



Open the Computer Management console on your computer (Right click My Computer, select Manage), and navigate to the following:

Services and Applications > Internet Information Services (IIS) Manager > Web Sites > Default Web Site > ClearTraceWeb

Right click ClearTraceWeb and select Properties. On the ASP.NET tab, make sure ASP.NET version selected is 2.0.50727.

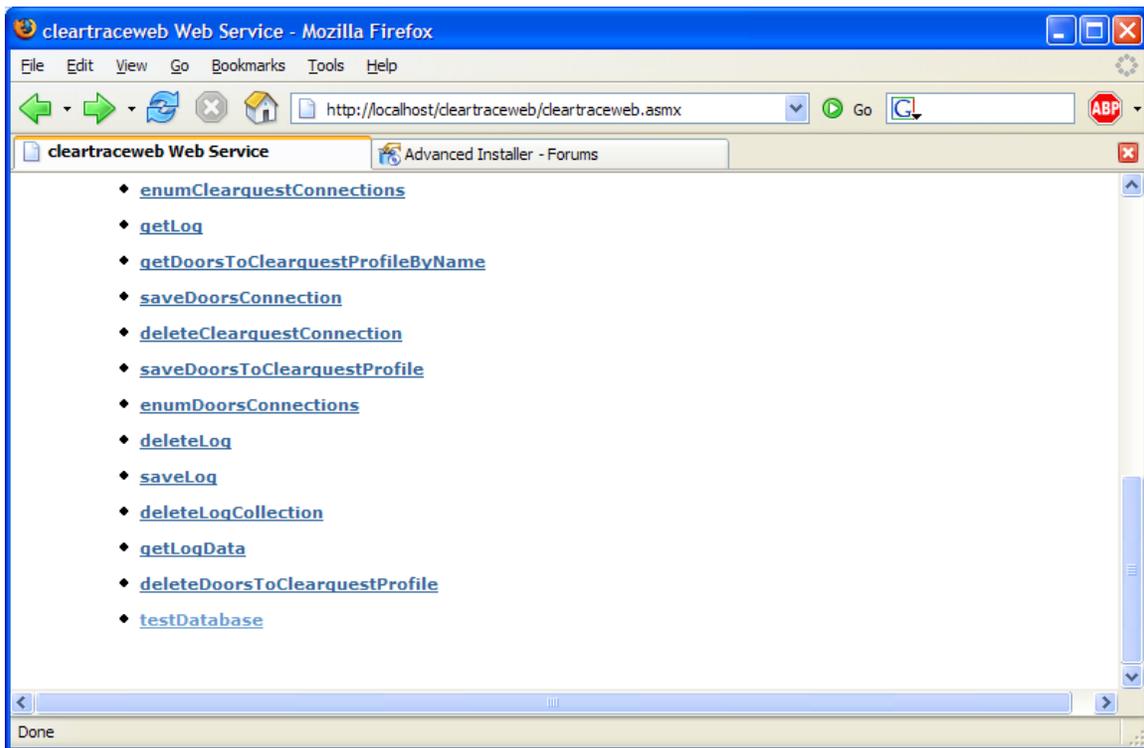
Refresh your browser after making the change to verify that the web service is working properly now.

Verification Step – Check Database via Web Services

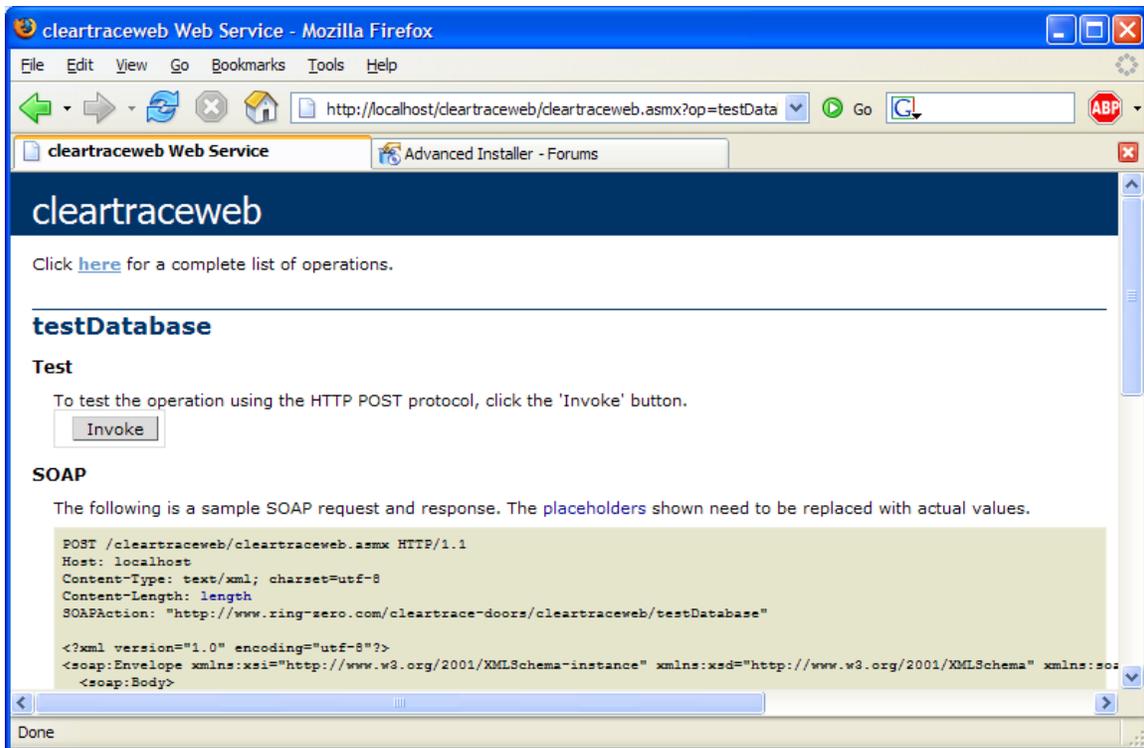
Using your web browser, navigate to the same site as in the previous step, but this time specify “localhost” in place of your machine name. Once again, you may need to specify a port number if IIS is configured to use a non-standard port number.

<http://localhost/cleartraceweb/cleartraceweb.asmx>

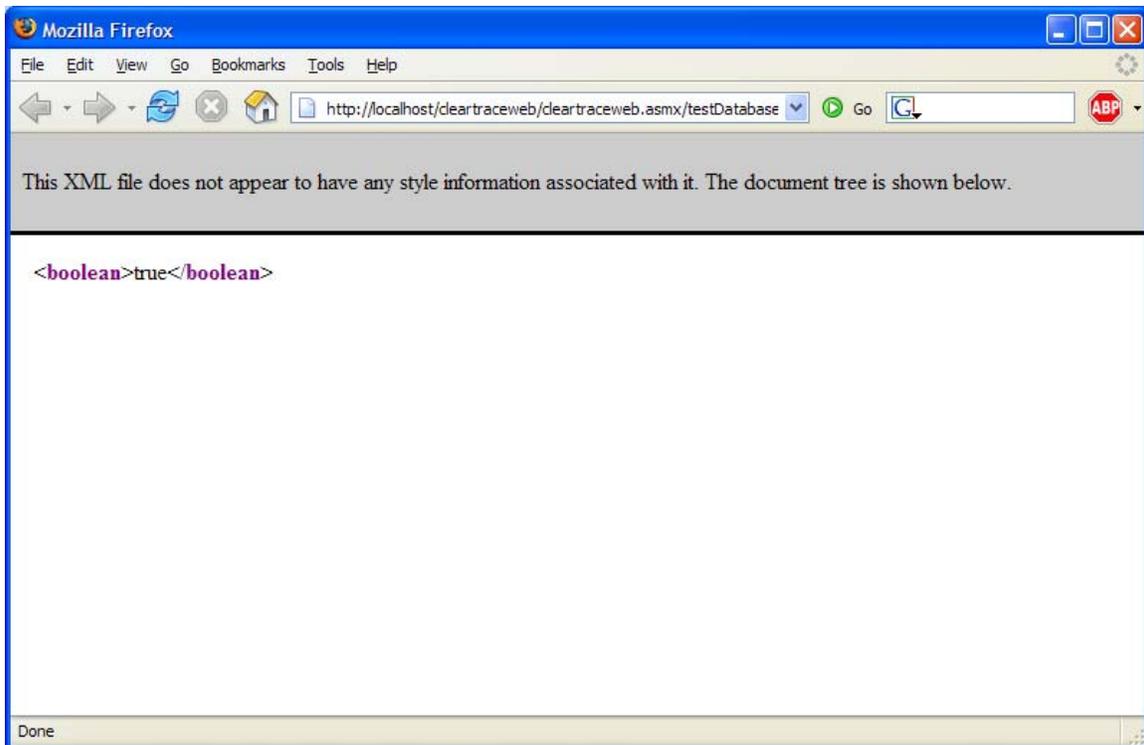
Scroll down to the bottom of the page and click on the “[testDatabase](#)” link.



Click the Invoke button.



A new browser window should open displaying something similar to the following, indicating that the ClearTrace database has been configured properly.

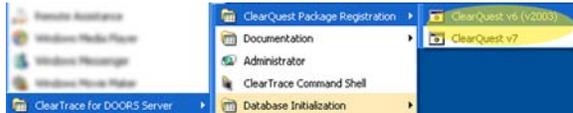


Install the ClearTrace Package into a ClearQuest Schema

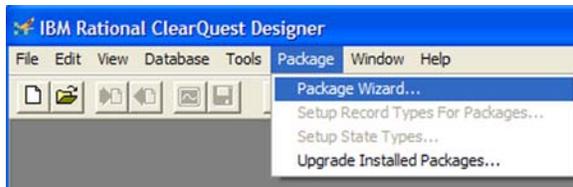
***** WARNING: INSTALLING A PACKAGE INTO A SCHEMA IS STEP WHICH IS ONLY REVERSIBLE BY DELETING CLEARQUEST DATABASES WHICH HAVE BEEN UPDATED WITH THE CLEARTRACE SCHEMA CHANGES.**

***** FOR THIS REASON, WE STRONGLY URGE AGAINST ADDING THE SCHEMA CHANGES TO YOUR PRODUCTION DATABASE UNTIL YOU HAVE THOROUGHLY TESTED CLEARTRACE AND DECIDED IN FAVOR OF PRODUCTION USAGE.**

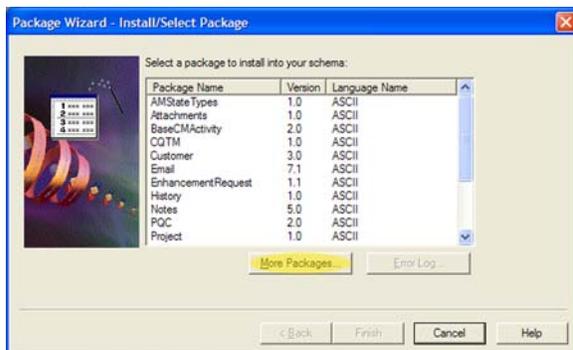
THE CLEARQUEST MAINTENANCE TOOL CAN BE USED TO CREATE A NEW SCHEMA REPOSITORY FOR TESTING PURPOSES.



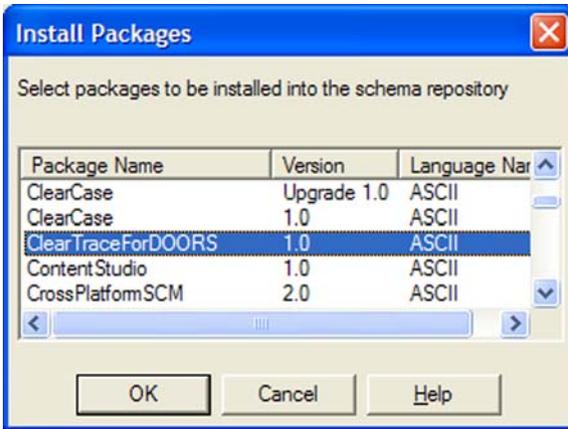
You must first register the version of the package which matches your ClearQuest version, either v2003.xx.xx (pre-7.0) or 7.0. Shortcuts for each are located in the ClearTrace folder on the Windows Start menu.



From the ClearQuest Designer menu, select Package > Package Wizard...



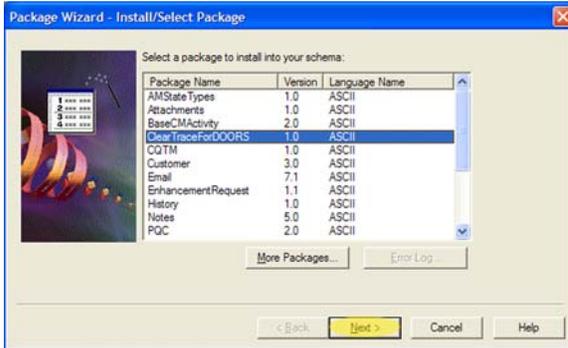
On the package wizard dialog, click the More Packages... button



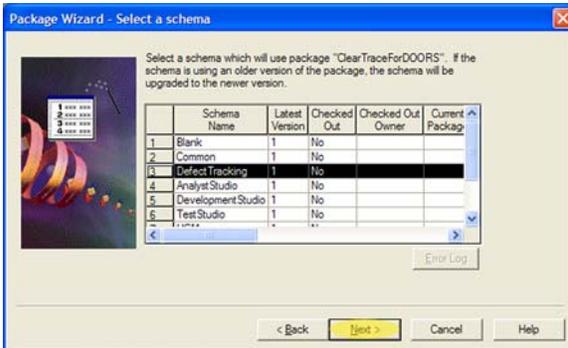
Select ClearTraceForDOORS from the list of additional packages and click the OK button.

NOTE: If you are upgrading ClearTrace for DOORS, you should follow this step to check for the latest version of the ClearTrace package.

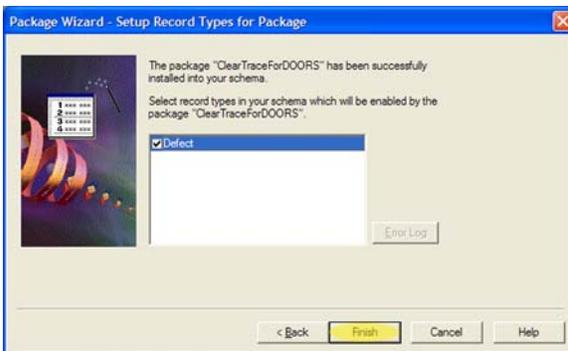
The latest package version is v1.6.



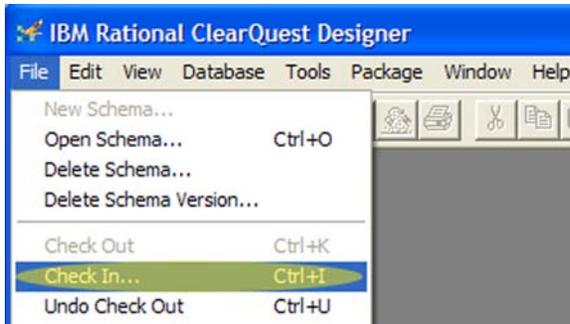
You will be returned to the package wizard dialog. Make sure you select the latest version of the ClearTrace for DOORS package, and click the Next button.



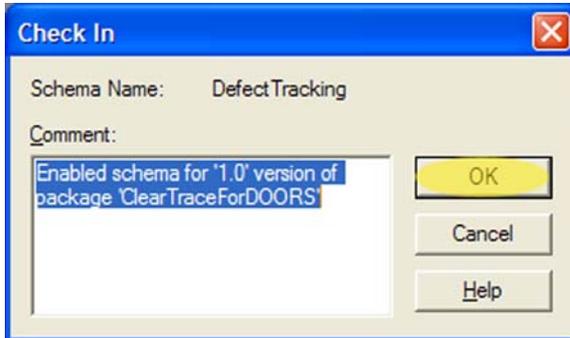
Select the schema you wish to install the ClearTraceForDOORS package into and click the Next button.



Select the record type(s) you wish to apply the package to. The record type(s) you select will be able to link to DOORS requirements. Click the Finish button.



From the ClearQuest Designer menu, select File > Check In...

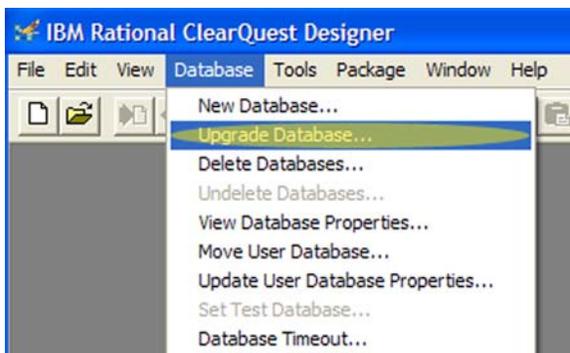


Click the OK button on the Check In dialog.

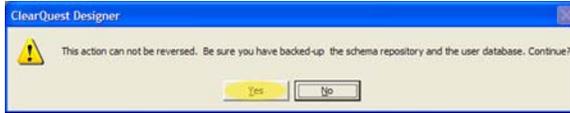


Click the OK button on the successful check-in confirmation message box.

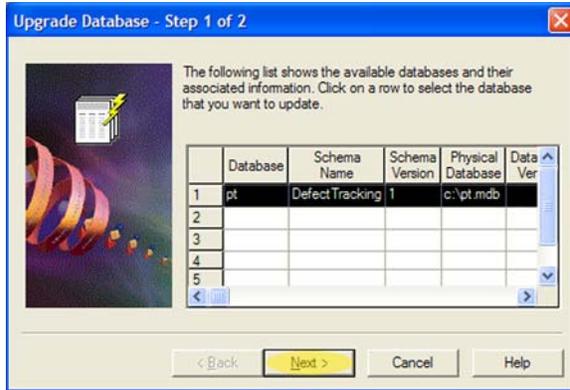
Upgrade Database with the ClearTrace Package



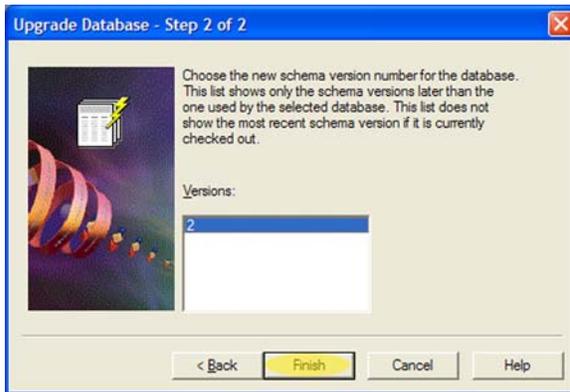
From the ClearQuest Designer menu, select Database > Upgrade Database...



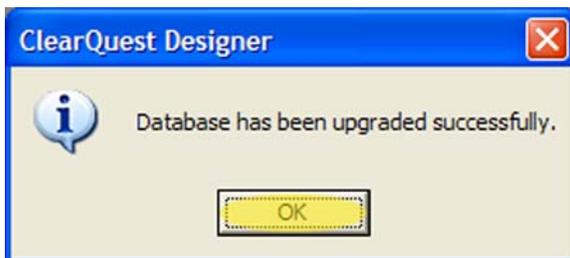
Acknowledge that you understand that your database cannot be “downgraded” after it has been upgraded.



Select the database you wish to upgrade and click Next.

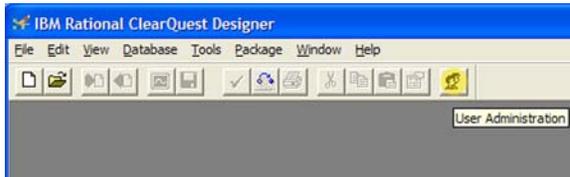


Select the latest schema version and click Finish.

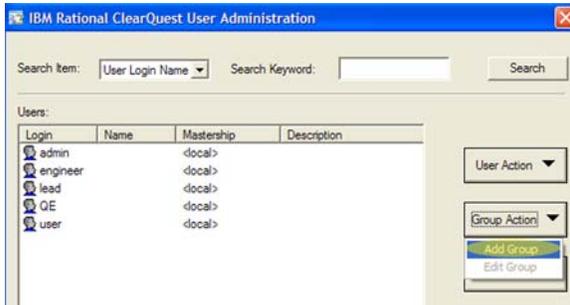


Click OK on the successful upgrade confirmation dialog.

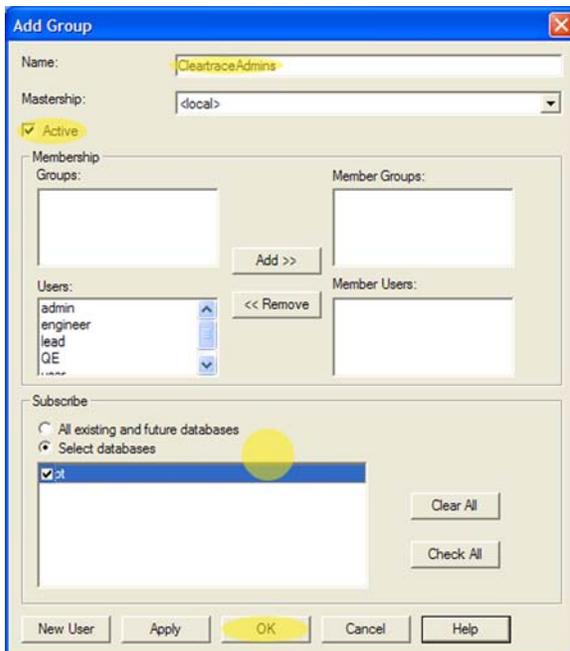
Create CleartraceAdmins Group



From the ClearQuest Designer toolbar, click the User Administration button.



Click the Group Action button and select Add Group.



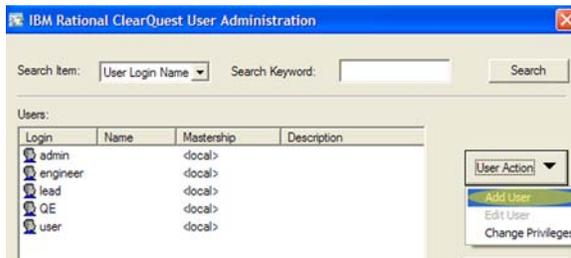
By default, the group you are creating **MUST** be named **CleartraceAdmins** – **case is significant and there are no spaces between the two words.**

Make sure that the CleartraceAdmins group is subscribed to the database you have upgraded with the ClearTrace schema.

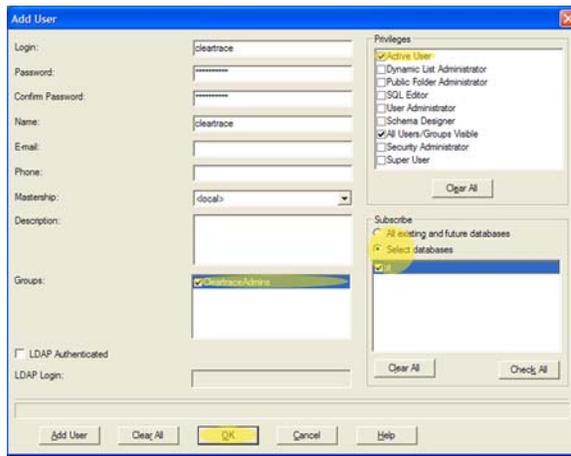
(To support environments in which ClearQuest group names must follow a particular naming convention, this group name can be overridden. See Appendix C for instructions.)

Click OK to continue.

Create an Account Belonging to the CleartraceAdmins Group



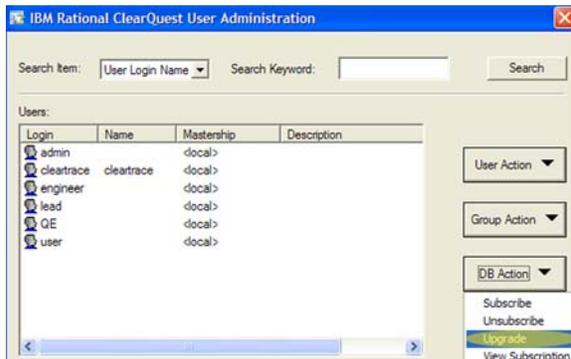
Click the User Action button and select Add User.



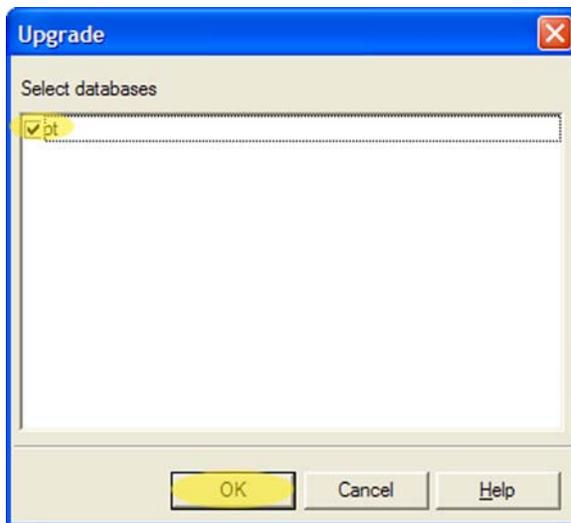
The login, name, and password you choose are not significant. What is important is that the user is active, a member of the CleartraceAdmins group, and subscribed to your ClearTrace-enabled database.

Click OK to continue.

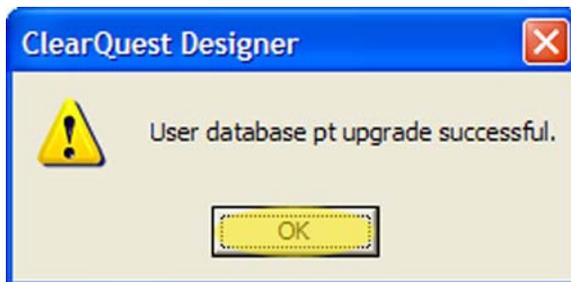
Upgrade Database(s) with ClearTrace Group and Account



Click the DB Action button and select Upgrade.



Select your ClearTrace-enabled database, making sure that it is checked, and click the OK button.

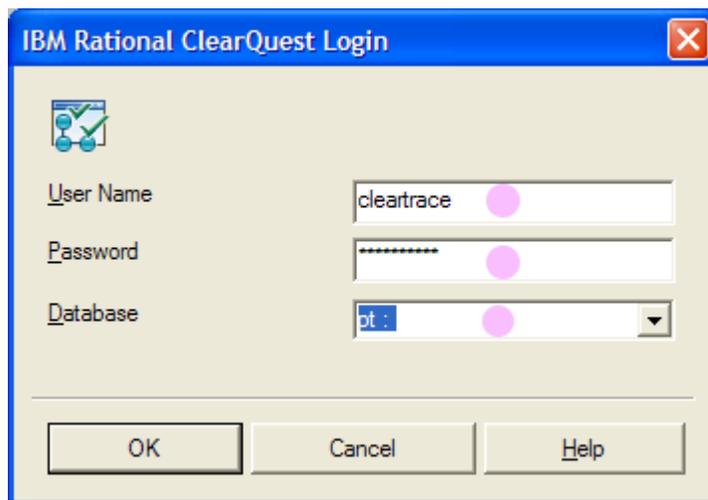


Click OK on the successful upgrade confirmation dialog.

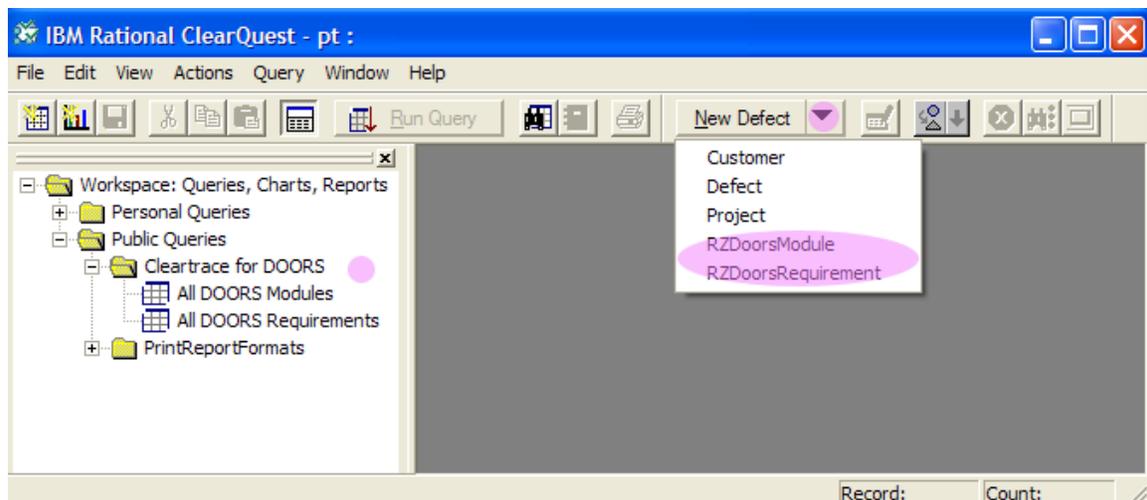
Verification Step – Log Into ClearQuest Using ClearTrace Account

This step provides a way to validate the following:

- ClearTrace schema has been installed and applied properly
- ClearQuest “CleartraceAdmins” group has been created properly
- ClearQuest administration account is a member of “CleartraceAdmins”
- Group and account have been subscribed to your database
- ClearQuest administration account username and password are correct



Click on the arrow next to the default record type for your database (in the example pictured below, the default is Defect). Verify that RZDoorsModule and RZDoorsRequirement appear on this list. If they do not, return to the user administration portion of ClearQuest Designer. Make sure the user account is a member of “CleartraceAdmins” and that both the user and group are subscribed to this database.



Create a DOORS Account for ClearTrace

Create a DOORS user which will “own” the ClearQuest data moved into DOORS. When ClearTrace creates new modules which reflect ClearQuest records, it will set module permissions so that the ClearTrace account is the only user, besides DOORS administrators, who can modify the shadowed ClearQuest records.

Before continuing, verify that you can log into DOORS with this account. In short, make sure the account works, that the password is correct, and that the password has not expired.

Server Configuration

Start the ClearTrace Administrator application.

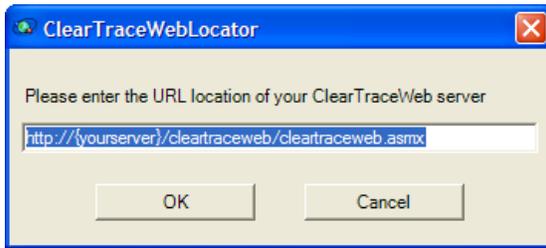
First-Time Steps

Configure Licensing



If you are evaluating ClearTrace, choose “Specify the License File” and enter the path to your license file. If you have purchased ClearTrace, choose “Specify the License Server System” and enter the port and server of your Ring-Zero FlexLM-based license server. **This must be specified as port@server, and the default port is 28282.**

Configure Location of Web Services



The ClearTrace Web Locator dialog will appear if the location for ClearTrace web services has not been configured or if the location is unavailable.

The default location is:

<http://server:port/cleartraceweb/cleartraceweb.asmx>

This information is stored in the Windows registry:
HKLM\SOFTWARE\Ring-Zero Software\{ClearTrace for DOORS}

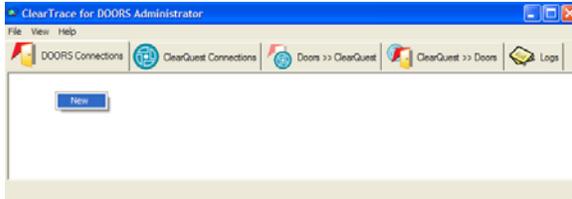
As the ClearTrace administrator, you are responsible for communicating this location to ClearQuest and DOORS users who will use the respective ClearTrace Add-Ons.



If you enter this information incorrectly, or if the ClearTrace web services URL is correct but was unavailable, an error message will be displayed and you will be prompted for the location.

ClearTrace Administrator Tasks

Create a DOORS Connection Profile

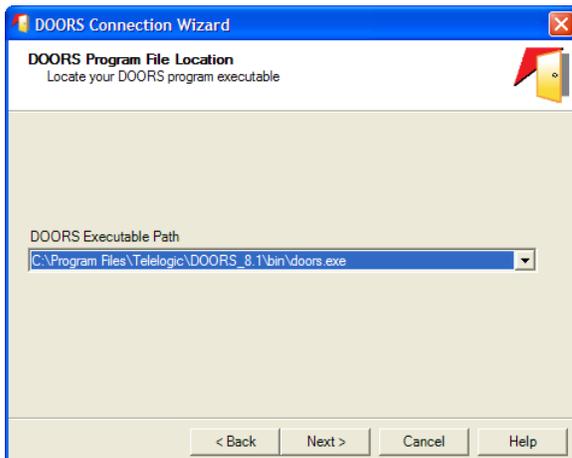


In the ClearTrace for DOORS Administrator application, click on the DOORS Connections tab.

Right-click the background of the window and select New.



When the wizard appears, click the Next button.



If there is only one client installation of DOORS on your computer, it should already be selected. If there are more than one, select the correct location.

Click Next to continue.

DOORS Database
Enter your database connection string

DOORS Database
16677@THREE
Your database must be specified as port@server.

< Back Next > Cancel Help

Enter the port and server of your DOORS database. The server name will be automatically converted to upper case.

Click Next to continue.

DOORS Username and Password
Provide your DOORS credentials

Please enter the username and password for the DOORS account you have created for owning and managing ClearTrace modules and/or reading modules which will be made available in ClearQuest.

DOORS Username
test

DOORS Password

Your password will be stored in encrypted form.

< Back Next > Cancel Help

The account you specify is important in two ways. When ClearTrace reads data from DOORS, this account must have access to this data. When ClearTrace writes data to DOORS, this account will “own” that data. ClearTrace will set access permissions on modules it creates so that this account has read/write access, but others (with the exception of DOORS administrators, which circumvent access restrictions) have read-only access.

Extra Command Line Arguments
Additional necessary command line arguments

If you need to, you may specify any additional command-line arguments at this point. For example, if your DOORS modules are dependent on DXL addins which are in a shared location, you may need to specify the location with -a (dxl location).

< Back Next > Cancel Help

If additional command-line arguments are necessary for launching DOORS, you can specify them at this point.

For example, your shortcut to DOORS may specify additional DXL add-in directories which are located on the network.

In this case, you would specify:
-a \\server\addins

If you are unsure about this step, consult your DOORS administrator.



DOORS Connection Wizard

Name this Connection
Choose a name for this connection

Choose a name for this connection:
my doors connection

Optionally, provide a description for this connection:

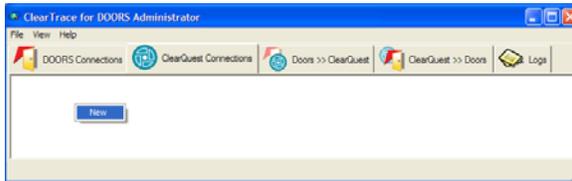
< Back Finish Cancel Help

Provide a name for this connection. The name is not significant – it will only be used to refer to this connection in other configuration steps.

The name for this connection can be changed later, if so desired.

ClearTrace will keep track of the last time this profile was successfully executed. If you edit this profile later on and make significant changes, the profile execution time will be reset.

Create a ClearQuest Connection Profile



In the ClearTrace for DOORS Administrator application, click on the ClearQuest Connections tab. Right-click the background of the window and select New.

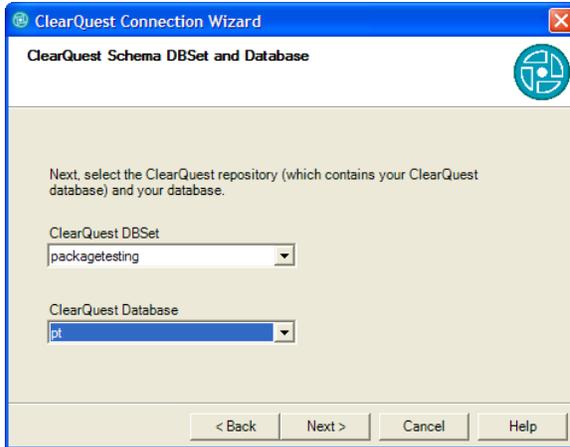


When the wizard appears, click the Next button.



Specify the username and password for the account you created during ClearTrace server installation steps.

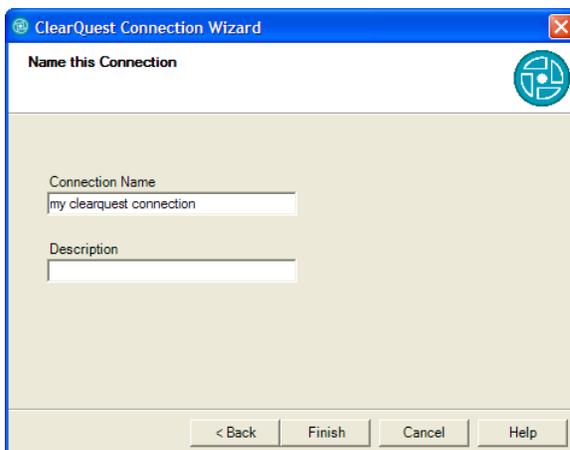
This user must be a member of the ClearQuest group “CleartraceAdmins”, and by membership in this group this account will “own” the data ClearTrace moves from DOORS into ClearQuest.



The screenshot shows the 'ClearQuest Connection Wizard' window with the title 'ClearQuest Schema DBSet and Database'. The main text reads: 'Next, select the ClearQuest repository (which contains your ClearQuest database) and your database.' Below this, there are two dropdown menus: 'ClearQuest DBSet' with 'packagetesting' selected, and 'ClearQuest Database' with 'qt' selected. At the bottom, there are four buttons: '< Back', 'Next >', 'Cancel', and 'Help'.

Select the ClearQuest DBSet (sometimes referred to as a ClearQuest “connection”) and the ClearQuest database configured during ClearTrace server installation steps above.

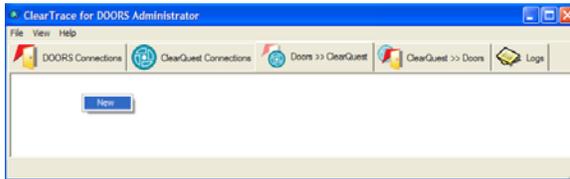
ClearQuest “test” databases, as opposed to production databases, are supported.



The screenshot shows the 'ClearQuest Connection Wizard' window with the title 'Name this Connection'. It contains two text input fields: 'Connection Name' with the value 'my clearquest connection' and an empty 'Description' field. At the bottom, there are four buttons: '< Back', 'Finish', 'Cancel', and 'Help'.

Provide a name for this connection. The name is not significant – it will only be used to refer to this connection in other configuration steps. The name for this connection can be changed later, if so desired.

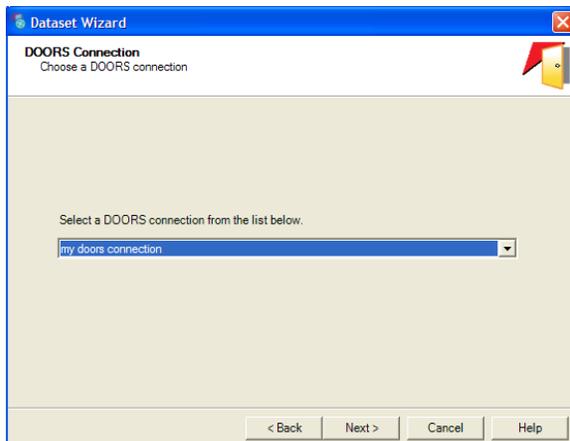
Create a DOORS to ClearQuest Profile



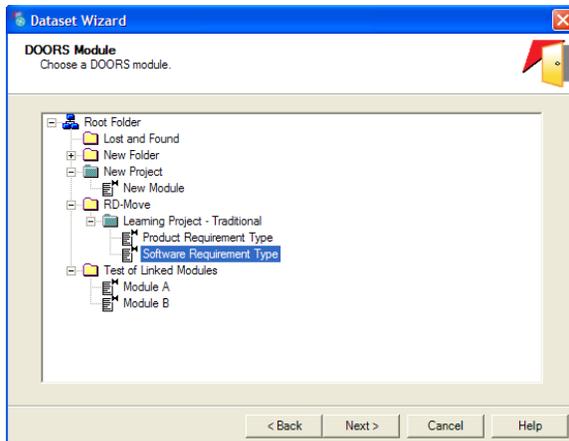
In the ClearTrace for DOORS Administrator application, click on the Doors >> ClearQuest tab. Right-click the background of the window and select New.



When the wizard appears, click the Next button.



Select the DOORS connection you configured two steps back. This connection identifies the source of data being moved from DOORS to ClearQuest.



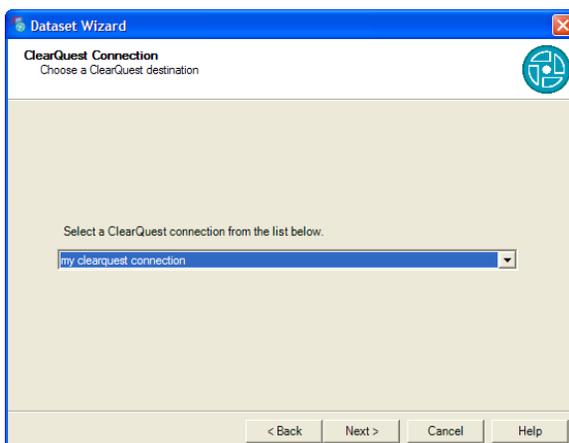
ClearTrace will retrieve the database hierarchy from this connection's DOORS database, which will be displayed in a tree. Select the DOORS formal module you wish to make available to ClearQuest users.



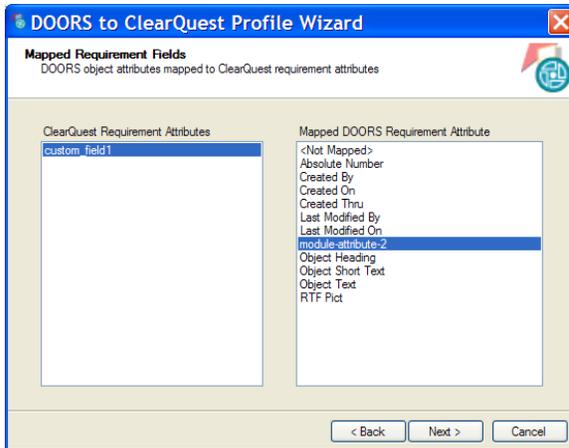
You can optionally select a view from the module selected in the previous step. This option is provided so that you can filter out DOORS objects which you do not wish to make available to ClearQuest users.

Important Note: If you use a view, this view will be treated as the entire set of requirements coming from this module. This means that objects which appear in the view later will be created in ClearQuest, and objects which are excluded later will be flagged as deleted in ClearQuest.

If you do not wish to use this feature, select "Standard view".



Select the ClearQuest connection configured in the previous step.



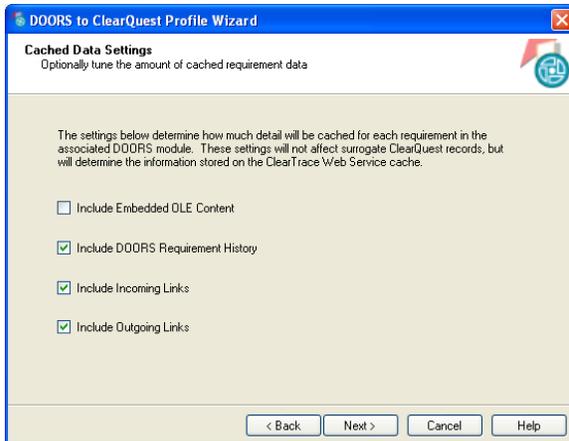
If you have added one or more custom fields to the ClearQuest record type (RZDoorsRequirement) used for shadowed DOORS requirements, you can optionally create mappings between your custom ClearQuest fields and DOORS object attributes.

First, click on the custom ClearQuest attribute on the left. Next, select a DOORS attribute on the right to create a mapping or select the top item (<Not Mapped>) to clear a mapping.

This is an advanced-level feature which requires planning, caution and common sense. ClearTrace cannot determine ClearQuest field lengths at runtime. If you map a DOORS attribute which contains long text items to a ClearQuest short string attribute (fixed length, maximum 254 characters), errors may occur which prevent this profile from executing properly.



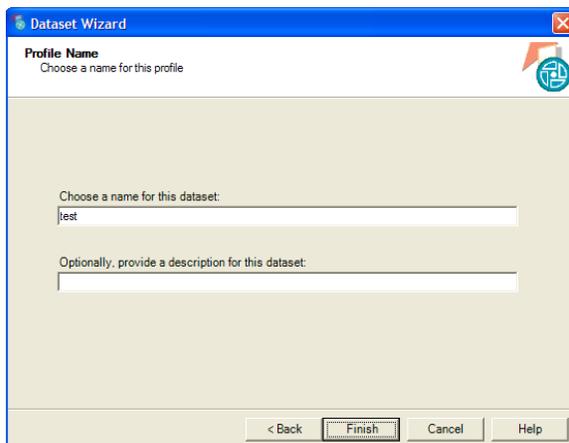
If you have added one or more custom fields to the ClearQuest record type (RZDoorsModule) used for shadowed DOORS module records, you can also optionally create mappings between your custom ClearQuest fields and DOORS module attributes.



The next wizard page allows tuning of how much detail ClearTrace will cache for requirements from this DOORS module.

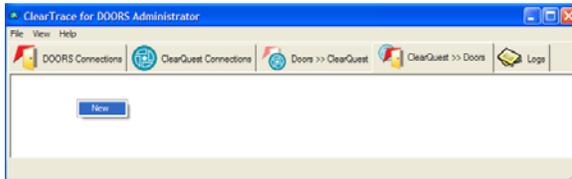
Options include: Embedded OLE Content (files which have been pasted or embedded into text fields of requirements), Requirement History, Incoming and Outgoing Links.

Enabling or disabling options on this page does not affect ClearQuest surrogate records, but does directly affect how much and what sort of information is visible for requirements from this module via the ClearTrace Addon for ClearQuest.



On the last step of the wizard, please provide a name for this profile. Once again, the name is not significant. However, there are two recommendations to consider. First, consider a name related to the DOORS module and/or DOORS database. Second, consider using dashes or underscores in place of spaces. If you included spaces in the name, you will need to place quotes around the name during manual server operation and configuration of automated server operation. The name for this connection can be changed later, if so desired.

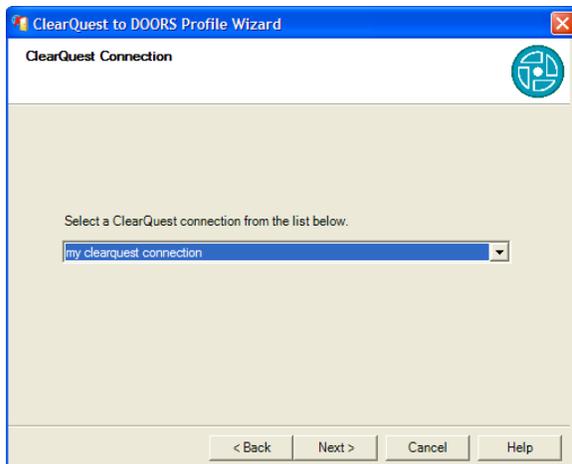
Create a ClearQuest to DOORS Profile



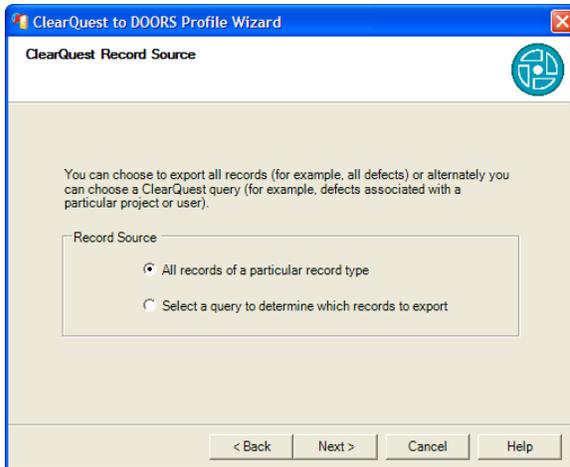
In the ClearTrace for DOORS Administrator application, click on the ClearQuest >> Doors tab. Right-click the background of the window and select New.



When the wizard appears, click the Next button.



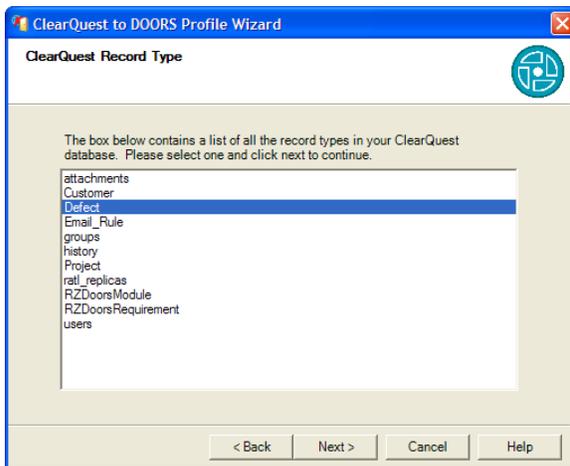
Select the ClearQuest connection you configured two steps back. This connection identifies the source of data being moved from ClearQuest to DOORS.



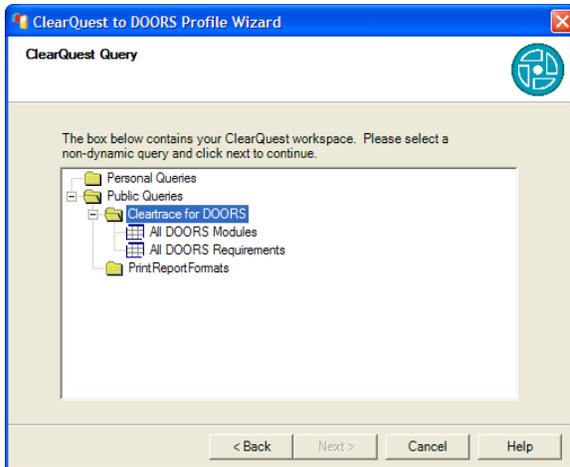
ClearTrace supports two types of record sources: all records of a particular record type (e.g. all defects, all enhancement requests), or a set of records determined by a preexisting query.

DOORS module creation performance degrades at a non-linear rate as module size increases. It is therefore recommended to devise a ClearQuest to DOORS strategy which leverages queries, unless you are moving relatively small sets of records (perhaps up to a few thousand) to DOORS. Leveraging queries which define subsets of records helps control DOORS module size and memory usage on the ClearTrace server, both of which in turn result in better DOORS performance. One more suggestion is to consider creating a baseline of ClearQuest data moved to DOORS after ClearTrace performs its initial population of records.

If you are using a query to define this Clearquest to DOORS profile, it is strongly advised to use a private query created under the ClearTrace account. This enables you to ensure that the ClearTrace account has continued access to queries it needs, and prevents other ClearQuest users from modifying or deleting these queries.



If you chose “All records of a particular type”, choose the record type.

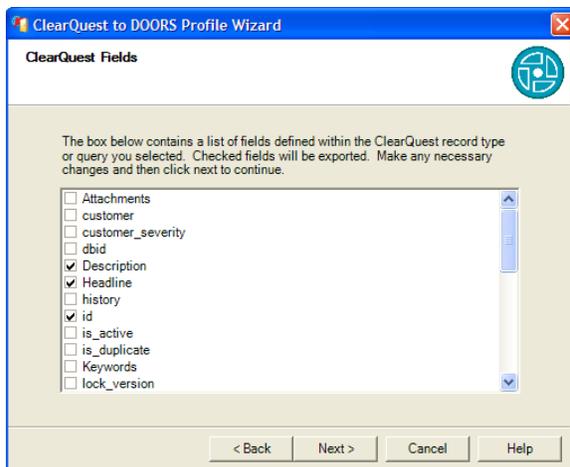


Otherwise, if you chose to use a query for the source of your records, select it now.

ClearTrace does NOT support dynamic queries (ones which prompt the user).

When ClearQuest executes a query containing dynamic filters programmatically (from the API), it ignores any dynamic filters but applies any static filters which are part of the query.

Because ClearQuest does not offer a programmatic way to discern between static and dynamic queries, they are not filtered from the displayed tree -- you must avoid choosing one.

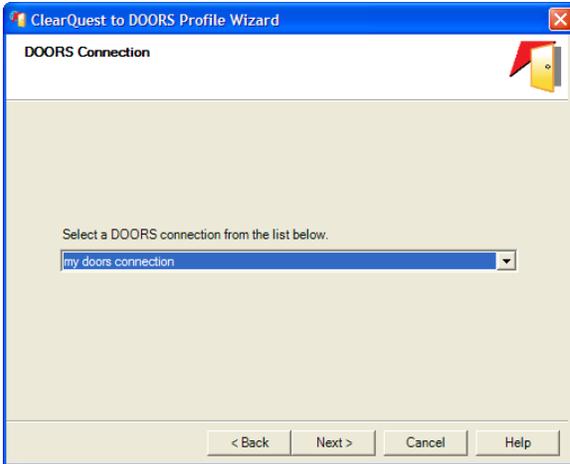


When selecting the ClearQuest fields you wish to move to DOORS, as a shortcut you can right-click and choose Select All Fields or Unselect All Fields from the context menu which appears.

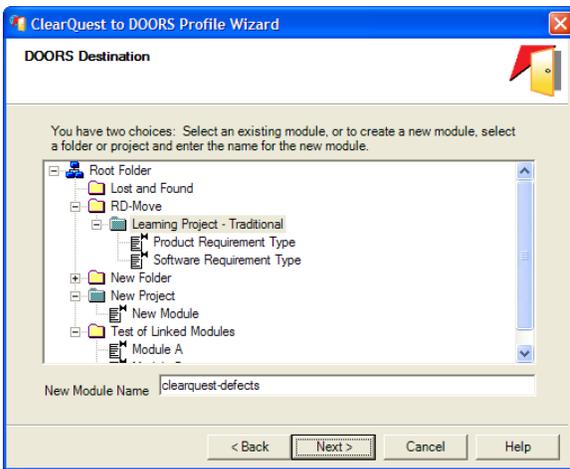
Please bear in mind that the more data you move to DOORS, the longer it will take to export from ClearQuest and create/update in DOORS.

For ClearTrace to create links between ClearQuest “shadow records” and your DOORS requirements, you must include the field named “RZ_doors_requirements”.

If you are adding this field to a query, consider unchecking “Show” for this field under the query’s display fields. This will boost performance as the number of links to DOORS requirements grows.

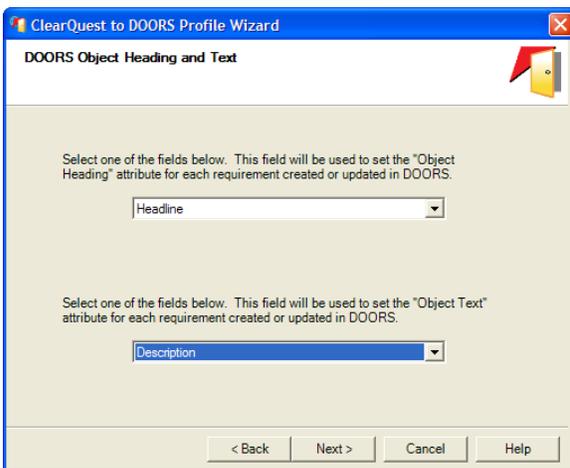


Select the DOORS connection which will serve as the destination for the ClearQuest records.

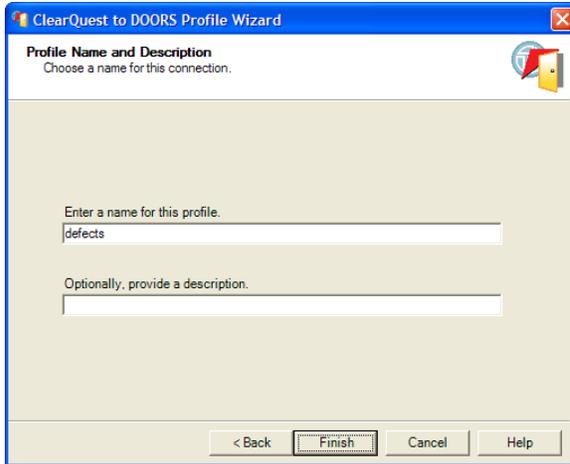


The database tree for the selected DOORS connection will be displayed.

Select a destination folder or project from the tree, and enter a module name. ClearTrace will create this module in the selected folder or project, along with a similarly-named link module.



Select the ClearQuest fields to use in setting object heading and text in the destination DOORS module.

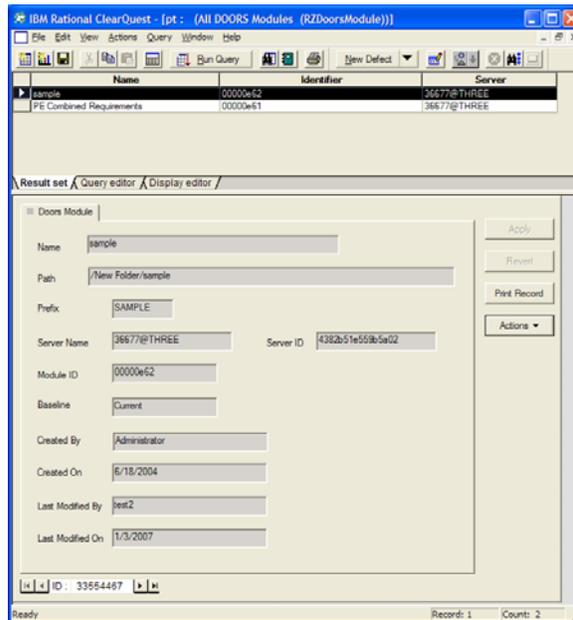


Provide a name for this profile. Once again, the name is not significant. However, there are two recommendations to consider. First, consider a name related to the ClearQuest record type or query. Second, consider using dashes or underscores in place of spaces. If you included spaces in the name, you will need to place quotes around the name during manual server operation and configuration of automated server operation. The name for this connection can be changed later, if so desired.

ClearTrace will keep track of the last time this profile was successfully executed. If you edit this profile later on and make significant changes, the profile execution time will be reset.

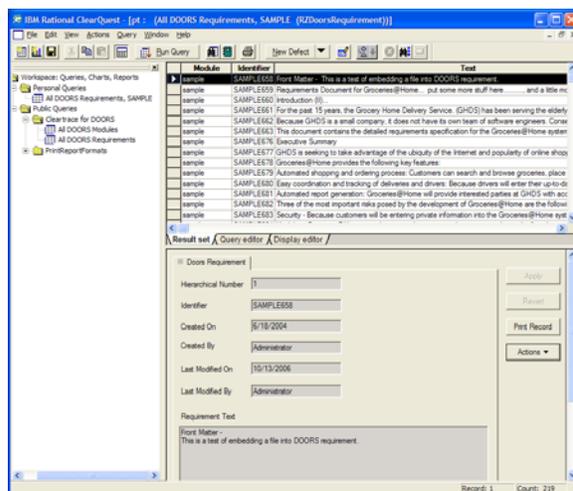
Pre-Installed ClearQuest Queries

There are several queries which are pre-installed for you as part of the ClearTrace schema package for ClearQuest. The following queries are provided as a starting point for building per-module queries to your ClearQuest users:



All DOORS Modules

Displays the name, module id, and server name of each DOORS module which has been moved from DOORS to ClearQuest.



All DOORS Requirements

Displays a sorted list of all DOORS requirements not flagged as deleted. Displayed fields include containing module, requirement identifier, and requirement text.

This query is a starting point for building per-module queries – filter on `containing_module.server_id` and/or `containing_module.module_id` and then save the query under a new name which reflects the name of your module.

These two fields can be cut and pasted from a DOORS Module record obtained by running the “All DOORS Modules” query above.

All DOORS Requirements (Deleted)

Displays a list of all DOORS requirements which have been flagged as deleted.

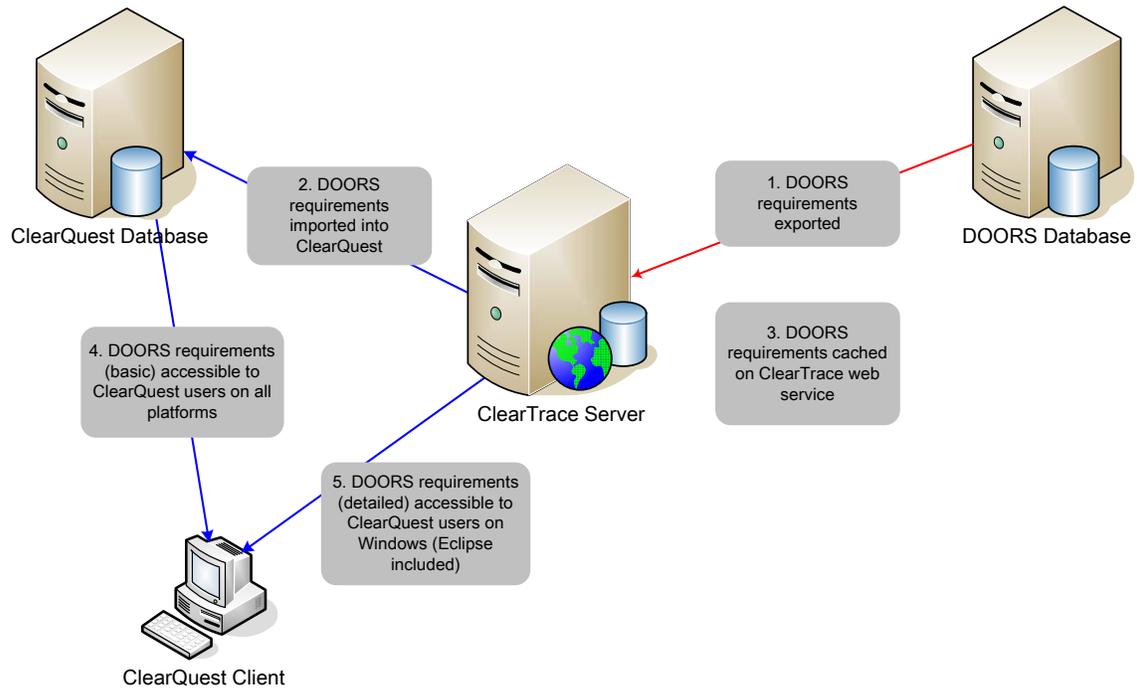
Advanced ClearQuest Queries

ClearTrace v1.3 SR2 and later supports creation of ClearQuest queries which displays DOORS requirements which are not linked to other records such as defects and enhancement requests. This can be accomplished by creating a new query against the RZDoorsRequirement record type and filtering on records for which the back-reference field to your requirement type is NULL.

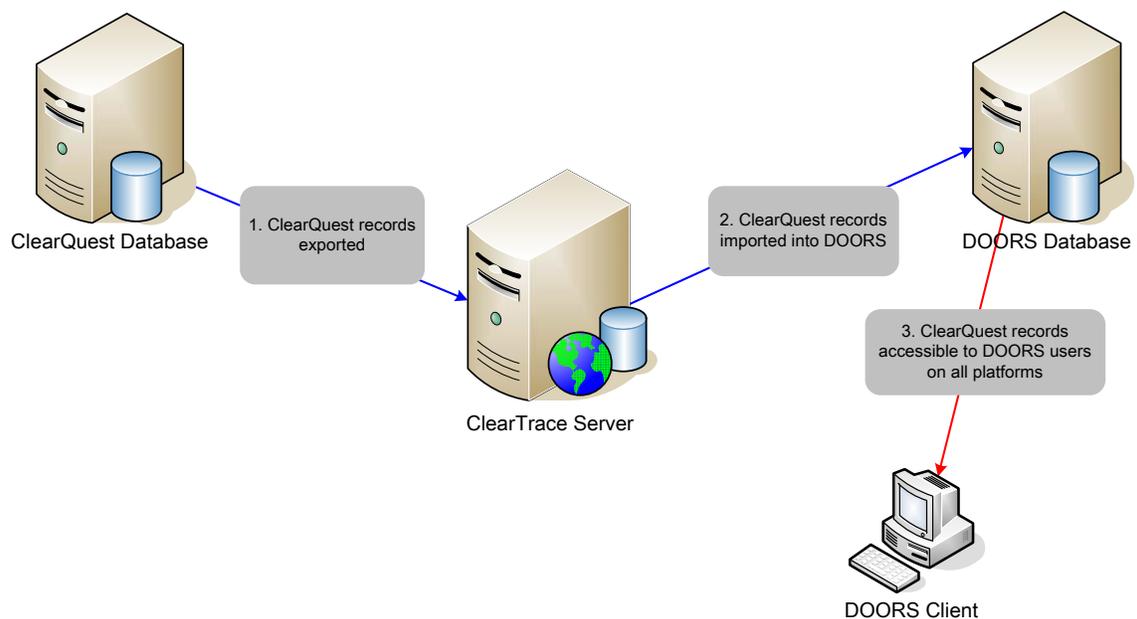
Server Operation

Functional Diagrams – How ClearTrace Works

DOORS to ClearQuest



ClearQuest to DOORS



Operation of the ClearTrace server involves manually or automatically executing a combination of profiles you have defined using the ClearTrace Administrator application.

Manual Operation

```
C:\Program Files\Ring-Zero Software\ClearTrace for DOORS Server\bin>runtask -tasks
ClearTrace for DOORS, version 1.1 build 65
Copyright (C) 2006 Ring-Zero Software, Inc. All Rights Reserved.
Microsoft .NET Framework version 1.1.4322.2032

DOORS to Clearquest Profiles (execute with -d2c)
pe
sample
product
software
test

Clearquest to DOORS Profiles (execute with -c2d)
clearquest-defects
defects
C:\Program Files\Ring-Zero Software\ClearTrace for DOORS Server\bin>
```

```
C:\Program Files\Ring-Zero Software\ClearTrace for DOORS Server\bin>runtask -d2c test

ClearTrace for DOORS, version 1.1 build 65
Copyright (C) 2006 Ring-Zero Software, Inc. All Rights Reserved.
Microsoft .NET Framework version 1.1.4322.2032

COMPLETED_SUCCESS

C:\Program Files\Ring-Zero Software\ClearTrace for DOORS Server\bin>
```

```
C:\Program Files\Ring-Zero Software\ClearTrace for DOORS Server\bin>runtask -c2d defects

ClearTrace for DOORS, version 1.1 build 65
Copyright (C) 2006 Ring-Zero Software, Inc. All Rights Reserved.
Microsoft .NET Framework version 1.1.4322.2032

COMPLETED_SUCCESS

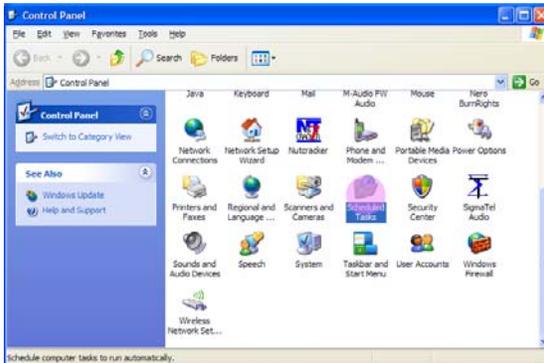
C:\Program Files\Ring-Zero Software\ClearTrace for DOORS Server\bin>
```

Automated Operation

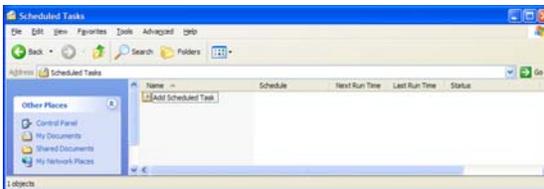
Automated operation involves using an external scheduler such as the Windows Scheduled Tasks feature to schedule execution of profiles you have defined using ClearTrace Administrator. A simple, flexible way of doing this is to create a Windows batch file which executes your profiles, then schedule execution of the batch file using Microsoft Scheduled Tasks.

Example Windows batch file (moves a DOORS to ClearQuest profile named “test” and moves a ClearQuest to DOORS profile named “defects”). This example was saved under the name “update.bat” in the ClearTrace\bin subdirectory.

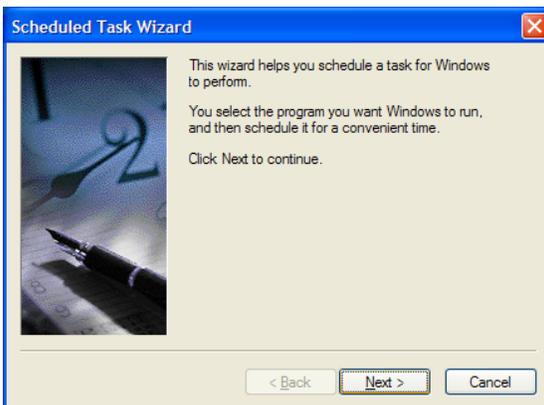
```
runtask.exe -d2c test  
runtask.exe -c2d defects
```



Open the Windows control panel, and double-click Scheduled Tasks.



Double-click Add Scheduled Task.



When the Scheduled Task Wizard appears, click Next to continue.



After a few moments, the wizard will display a list of programs installed on your computer. Click the Browse button, then find and select your ClearTrace batch file.



Provide a name for the task, select Daily, and click Next to continue.



You can accept the defaults – you will modify the details of this task shortly. Click next to continue.



Provide Windows username and password for this task and click Next to continue.



Check the “Open advanced properties” checkbox and click Finish. The Advanced Properties portion of task scheduling is flexible enough to meet most synchronization needs.

Uninstalling

ClearTrace™ Server Components can be uninstalled via Control Panel | Add Remove Programs. Uninstalling will not remove the following:

- Microsoft .NET Framework
- ClearTrace database contents
- Preferences (licensing, web services URL) configured in first-time steps

Updating

To install an updated version of ClearTrace™ Server Components, you must first uninstall the application via Control Panel | Add Remove Programs. See the previous section for details. Updated versions of ClearTrace may include additions or modifications to the ClearQuest package. In this case, first, follow the Windows “Start” menu shortcut to register all ClearQuest packages for your ClearQuest version. Next, within the ClearQuest Designer application, choose Package >> Upgrade Installed Packages to install the latest package revision into your ClearQuest schema. Finally, once your schema has the latest version of the package, upgrade your ClearQuest database(s) with the schema changes.

Appendix A. Data Type Handling

DOORS to ClearQuest

Schema Fields

DOORS	ClearQuest
Module_ID	SHORT_STRING(50)
Module_Path	MULTILINE_STRING
Module_Name	MULTILINE_STRING
Module_ShortName	SHORT_STRING(254) – added in v1.1
Module_Prefix	SHORT_STRING (254)
Module_Created On	DATE_TIME
Module_Created By	SHORT_STRING (254)
Module_Modified On	DATE_TIME
Module_Modified By	SHORT_STRING (254)
Module_Baseline	SHORT_STRING (254)
Module_Modified Ticks	INT
Server_Name	SHORT_STRING (254)
Server_ID	SHORT_STRING (254)
Requirement_Text	MULTILINE_STRING
Requirement_Identifier	SHORT_STRING (254)
Requirement_Hierarchy	SHORT_STRING (254)
Requirement_Sort	INT
Requirement_Absolute	INT
Requirement_Created On	DATE_TIME
Requirement_Created By	SHORT_STRING (254)
Requirement_Modified On	DATE_TIME
Requirement_Modified By	SHORT_STRING (254)
Containing_Module	(Reference to RZDoorsModule)
Modified_Ticks	INT
Is_Deleted	SHORT_STRING (“True”, “False”)
[[record type]]	REFERENCE_LIST (Back-Reference)
[Remaining attributes - Cleartrace server]	

Delete Behavior, in General

During updates, RZDoorsRequirement records which no longer exist in DOORS are flagged as deleted via the “Is_Deleted” field.

Delete Behavior, Using DOORS Views

With respect to DOORS views, for which support was added in v1.2 of ClearTrace, if a DOORS to ClearQuest profile is configured to use a view which contains a subset of DOORS requirements in a module, the contents of this subset will determine additions and flagged deletions when the DOORS module is moved to ClearQuest. This means that new objects which appear in a view will be added to ClearQuest, and objects which disappear from a view will be flagged as deleted. Objects which “reappear” – i.e., they were flagged as deleted at some point because they were disappeared from a view, and then later reappear in the view, will have their deleted flag cleared.

A hypothetical example: a DOORS module contains 100 requirements in total, and view “X” is created which returns 50 of the 100 requirements. If the module is initially moved to ClearQuest using “Standard View”, all 100 requirements will be created in ClearQuest. If the module is initially moved to ClearQuest using view “X”, the 50 requirements which appear in view “X” will be created in ClearQuest. If “Standard View” was used initially, but then view “X” was used later, the 50 requirements which do not appear in view “X” would be flagged as deleted in ClearQuest. If “Standard View” was used after this point, the 50 requirements which were flagged as deleted would be unflagged.

ClearQuest to DOORS

Data Type Mappings

ClearQuest	DOORS
Short String	String
Multiline String	Text
Integer	Integer
Date_Time	Date
Reference	String
Reference_List	Text
Attachment_List	Text
ID	String
State	String
Journal	Text
DBID	Integer
StateType	String
RecordType	String
Float	Real

Delete Behavior

Objects which no longer exist in a source record set being updated in DOORS, whether a query or all records of a given type, are soft-deleted from the DOORS read-only copy. Outgoing links from soft-deleted objects are removed (added, v1.2).

Changes to ClearQuest attribute sets

Additions to ClearQuest attribute sets are currently reflected in DOORS. Modifications and deletions will be added in a ClearTrace update in the future.

Appendix B. Performance Metrics and Considerations

Performance observations in your environment may vary greatly due to database by ClearQuest and DOORS, as well as memory caching by Windows, database load and performance, processor clock speed, storage performance, network saturation and performance, etc. Therefore, in order for you to understand ClearTrace performance in your environment, it is important to generate your set own metrics.

Adding more memory to your ClearTrace server is suggested if you are working with large sets of data. Also, expect initial population of datasets to consume a magnitude more time than updates, especially when working with large pushes of ClearQuest data to DOORS.

Test Environment:

Dell 9150 Workstation – Pentium-D 820 (dual core @ 2.4GHZ)

2GB RAM

Windows XP Professional SP2

DOORS v8.1, local server

ClearQuest v7.0, local MSACCESS database

DOORS module containing ~30000 “barebones” objects

DOORS to ClearQuest, initial population	
DOORS->XML	16 minutes
XML->ClearQuest	32 minutes
XML->ClearTrace cache	30 seconds
(total)	~48 minutes

DOORS to ClearQuest, update with no changes	
DOORS->XML	16 minutes
XML->ClearQuest	1 minute
XML->ClearTrace cache	30 seconds
(total)	~17 minutes

ClearQuest to DOORS	
Initial population	~ 2 hours 10 minutes
Update with no changes	~1 hour
update with 2 deletions	~1 hour

DOORS has a large memory footprint when creating new objects. This underscores the importance of making sure your ClearTrace server has ample memory and also trying to be conservative and realistic when choosing which ClearQuest fields need to be transferred to DOORS.

Appendix C. ClearQuest Package, Customizing

The name of the ClearTrace administrators group can be modified by checking out your ClearTrace-enabled schema, adding a global Perl function section, adding the following function to it, checking the schema in, and updating your user database(s).

```
sub RZ_Cleartrace_Override_Admin_Group_Name {
    return {"new_group_name"};
}
```

The ClearTrace package can be disabled by adding the following global Perl function to your schema.

```
sub RZ_Cleartrace_Disable_Integration {
    return 1;
}
```

ClearTrace error messages can be overridden by adding the following global Perl function to your schema and replacing the text of the messages.

```
Sub RZ_Cleartrace_Override_ClearTraceErrorMessages {
    my ($index) = @_ ;
    my $message;
    my %messages = (
        # ClearTrace Add-On for ClearQuest is not installed or registered properly.
        addon_not_registered      => "{your text}",

        # This action is disabled because the ClearTrace package has been disabled.
        package_disabled          => "{your text}",

        # This action must be invoked from a Windows (native or Eclipse) ClearQuest client.
        platform_unsupported      => "{your text}",

        # DOORS 8.1 or later is necessary for this feature
        doors_insufficient_version => "{your text}",

        # This action requires the field server_name to have a value.
        field_server_novalue      => "{your text}",

        # This action requires the field containing_module.server_name to have a value.
        field_module_server_novalue => "{your text}",

        # Unknown ClearTrace Message
        unknown_index             => "{your text}",
    );

    if ( exists $messages{$index} ) {
        $message = $messages{$index};
    } else {
        $message = $messages{unknown_index};
    }
    return $message;
}
```

The ClearTrace schema allows you to define code hooks which will be called when module or requirement records are submitted, modified or deleted. This is accomplished by adding and implementing the following global Perl functions in your schema:

```
Sub RZ_Cleartrace_Override_Notification_Module_VB( actionname, actiontype )  
End Sub
```

```
Sub RZ_Cleartrace_Override_Notification_Requirement_VB( actionname, actiontype )  
End Sub
```

This can also be accomplished by adding and implementing the following global VB functions in your schema:

```
RZ_Cleartrace_Override_Notification_Module( $actionname, $actiontype ) {  
}  
  
RZ_Cleartrace_Override_Notification_Requirement( $actionname, $actiontype ) {  
}
```

Technical Support

Depending on the terms of your support agreement, you can obtain support in a number of ways.

- Visit the Ring-Zero Software web site (<http://www.ring-zero.com/support>)
- Email Ring-Zero technical support (support@ring-zero.com)
- Contact Ring-Zero Software by phone at one of the following numbers.

Toll Free, United States	(800) 742-1312
Fax	(800) 742-1312
International	(512) 686-3022