QADirector

Installation Guide

Release 6.1

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Contents

CHAPTER 1

Introduction

How to Use This Guide

The *QA*Director Installation Guide includes system requirements and instructions for installing the *QA*Director application.

Who Should Read This Guide

The *QA*Director Installation Guide is intended for administrators who are installing *QA*Director. For reference and usage information, refer to the online help. Micro Focus assumes that you are familiar with basic Microsoft Windows navigation. If this is not the case, familiarize yourself with the documentation for Microsoft Windows before reading this guide. For information about the integrated products, refer to the documentation shipped with the products.

Related Documentation

The *QA*Director documentation set includes the following:

- The *QADirector Installation Guide* includes system requirements and instructions for installing the ***QA*Director web server**, the *QA*Director database, the **Test Management Server**, the **QADirector Integration Plug-In**, the ***QA*Director client**, **Manual Testing**, and the **Test Execution Agent**.
- The *QADirector Online Help* provides how-to, reference, and conceptual information on the *QA*Director centers, tools, procedures, and the full client application.
- The *QADirector Release Notes* contains System Requirements, Known Issues, Technical Notes, and What's New information for each release.
- The *QADirector Integration and SDK Reference* contains information about how to use the *QA*Director SDK/API and integration components.
- The *Distributed License Management Installation Guide* provides instructions for installing and configuring a license for *QA*Director.

- The *QADirector - CaliberRM Integration Help* contains reference and how-to procedures for integrating your CaliberRM requirements into *QA*Director.

Getting Help

If ever you have any problems or you would like additional technical information or advice, there are several sources. In some countries, product support from Micro Focus may be available only to customers who have maintenance agreements.

If you obtained this product directly from Micro Focus, contact us as described below. If you obtained it from another source, such as an authorized distributor, contact them for help first. If they are unable to help, contact us as described below.

However you contact us, please try to include the information below, if you have it. The more information you can give, the better Product Support can help you. But if you don't know all the answers, or you think some are irrelevant to your problem, please give whatever information you have.

- The name, release (version), and build number of the product.
- Installation information, including installed options, whether the product uses local or network databases, whether it is installed in the default directories, whether it is a standalone or network installation, and whether it is a client or server installation.
- Environment information, such as the operating system and release on which the product is installed, memory, hardware/network specifications, and the names and releases of other applications that were running.
- The location of the problem in the product software, and the actions taken before the problem occurred.
- The exact product error message, if any.
- The exact application, licensing, or operating system error messages, if any.
- Your Micro Focus client, office, or site number, if available.

Contact

Our web site gives up-to-date details of contact numbers and addresses. To connect, enter *www.microfocus.com* in your browser to go to the Micro Focus home page, or go to *http://supportline.microfocus.com*.

CHAPTER 2

Getting Started

*QA*Director Overview

Micro Focus delivers automated testing products and solutions designed to validate applications running in the full spectrum of environments, to isolate and correct problems, and to ensure that systems can handle anticipated load before applications go live. *QA*Director is part of the Micro Focus Quality Management solution, which consists of the following products:

Optimal Trace

Enables the structured capture of requirements. Optimal Trace facilitates all aspects of requirements capture from drafting initial notes at a customer site through generation of final requirements documents.

QADirector

Coordinates the entire testing process by organizing, tracking, and executing automated and manual tests. *QA*Director integrates with testing, program analysis, defect tracking, and requirements management tools. The application enables teams to deliver a repeatable functional testing process that helps realize significant gains in productivity and efficiency, from planning requirements and executing tests to analyzing results.

QALoad

Load tests enterprise systems and associated networks. QALoad can stress-test your system by simulating thousands of users simultaneously performing different operations. It creates and runs test scripts that can simulate application transactions on the system without involving end users or their equipment.

Quality Manager

Provides complete IT management and governance that enables organizations to maximize the business value of the entire IT portfolio including projects, applications, and infrastructure.

TestPartner

Tests Web- and Microsoft Windows-based applications that use Microsoft technologies. TestPartner records user actions to quickly produce powerful tests. Each recorded test displays as a series of actions in clear, concise steps that can be easily understood by all testers, from novice to expert. You can record user sessions with the application, add validation functions, and replay the sessions later to ensure that the application works as expected.

TrackRecord

Records and reports information about products being developed or supported. Information on team members, testers, schedules, and defect reports is recorded in an object-oriented database; it can be retrieved using TrackRecord's query and reporting features.

Before Installing

Prior to installation, carefully review the following information:

System Requirements

Review the system requirements to ensure that the system meets the prerequisites for the successful installation and operation of the product. System requirements are listed in the *Release Notes* as well as in this book.

Release Notes

Review the *Release Notes* for information about new features, technical notes, and known issues that may enhance or impact your product's performance. *Release Notes* contain recent changes that may not be included in the product documentation.

Release Notes can be viewed from the installation media or on SupportLine (*http://supportline.microfocus.com*), the Micro Focus product support web site. The *Release Notes* on SupportLine are periodically updated as new information becomes available.

Installing the License

A trial license is supplied with your product. You can install a permanent license at any time during the evaluation period. When the evaluation period expires, you must install a license to successfully run this product. After successfully installing *QA*Director, you can access the *Distributed License Management Installation Guide*, by clicking **Start>All Programs>Micro Focus>QADirector>Documentation**.

NOTE

Node locked licenses are not permitted in this release of *QA*Director. A license server must be installed. Refer to the *Distributed License Management Installation Guide* for additional information.

System Requirements

*QA*Director components can be installed on one machine or on separate machines. Users must have administrator permissions to install *QA*Director. The minimum system requirements for each component are as follows:

NOTE

This will be the last release of *QA*Director to support the Windows 2000 platform and Oracle 9i database.

	Hardware	Operating System	Software
Database Server	2 GHz processor with 2 GB RAM (4 GB RAM recommended) Minimum 20 GB (40 GB recommended) of free disk space	Microsoft Windows Server 2003 SP 2 (32-bit) Microsoft Windows Server 2008 (32-bit)	Microsoft SQL Server 2005 SP 2 (32-bit) with patch version 3050 Microsoft SQL Server 2008 (32-bit) Oracle 9i Oracle 10g Release 2 Oracle 11g
Web Server	2 GHz processor with 2 GB RAM (4 GB RAM recommended) Minimum 20 GB (40 GB recommended) of free disk space	Microsoft Windows Server 2003 SP 2 (32-bit or 64-bit) Microsoft Windows Server 2008 (32-bit or 64-bit) Microsoft Windows Server 2008 R2 (64-bit)	IIS 6.0 (32-bit) IIS 7.0 (32-bit) IIS 7.5
Test Management Server	2 GHz processor with 2 GB RAM (4 GB RAM recommended) Minimum 10 GB of free disk space	Microsoft Windows Server 2003 SP 2 (32-bit or 64-bit) Microsoft Windows Server 2008 (32-bit or 64-bit) Microsoft Windows Server 2008 R2 (64-bit) Microsoft Windows 7	
Client Machine	2 GHz processor with 1 GB RAM (2 GB RAM recommended) Minimum 10 GB of free disk space	Microsoft Windows Server 2003 SP 2 (32-bit) Microsoft Windows XP Professional SP 2 OR SP 3 (32-bit) Microsoft Windows Vista Business SP 1 (32-bit) Microsoft Windows Server 2008 (32-bit) Microsoft Windows 7	Microsoft Internet Explorer 7.0 Microsoft Internet Explorer 8.0 Firefox 2.x with FFClickOnce Add-on Firefox 3.0 with FFClickOnce Add-on FireFox 3.5. See *QADirector Installation Guide* for configuration information. Citrix MPS 4.x

Hardware	Operating System	Software
QADirector **Manual** **Test** **Import** **Utility**		Microsoft Office Excel 2000, 2002, 2003, 2007 Microsoft Office Word 2000, 2002, 2003, 2007

NOTE

- Adobe Acrobat Reader is required to view the online books in PDF format.
- On the client machine, administrator permissions are required to install .NET. If .NET is already installed, administrator permissions are not required to install *QA*Director.
- TCP/IP protocol must be installed on all computers

CHAPTER 3

Installing the *QA*Director Application

*QA*Director Architecture

The essential components of *QA*Director include:

QADirector Web Server

The *QA*Director web server hosts the central *QA*Director web application which is then accessed by the *QA*Director smart client.

QADirector Database Server

The *QA*Director database server contains all the essential *QA*Director information and assets.

Test Management Server

The **Test Management Server** reads job submissions from the database, manages jobs, tracks the machines available for test execution, and reports the status of jobs in progress. In order to perform automated testing, a **Test Management Server** and **Test Execution Agent** must be running.

This application runs as a service and can reside on the same machine as the web server, or on separate machines.

Client Machine

The *QA*Director client is a Smart Client application that is downloaded from the *QA*Director web server to a client machine for execution. The *QA*Director client can also connect to the *QA*Director **Manual Testing** application.

Test Execution Agent

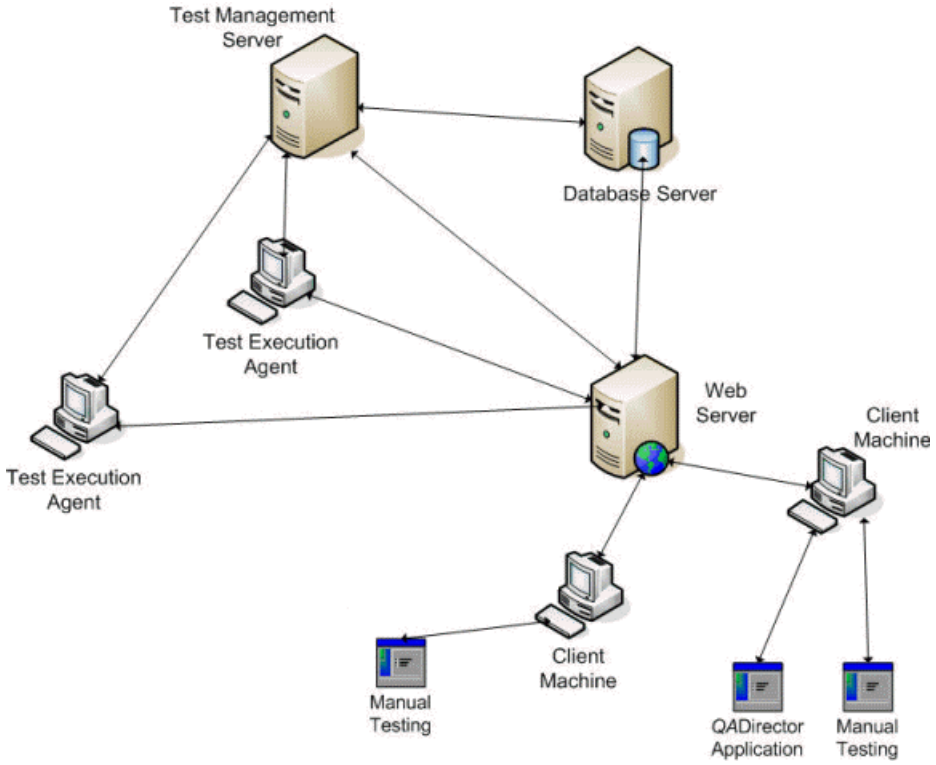
The **Test Execution Agent** is an automated testing application that receives the test execution requests from the **Test Management Server** and then runs the tests and submits the results back to *QA*Director. Specifically, it stores information about who is permitted to execute jobs on a computer and whether the execution is remote or local.

In a typical team environment, install and start a **Test Execution Agent** on each machine where jobs will run.

In a typical installation, *QA*Director is installed on a web server and the *QA*Director database is installed separately on a database server. During the installation, you can select Microsoft SQL Server Express as the default database, or install the database separately, either Microsoft SQL Server or Oracle. There are several options when installing the *QA*Director components:

- The web server and the database server should be on separate machines.
- The **Test Management Server** can be on the same machine as the web server, or the database server, or on a separate machine.
- The **Test Execution Agent** can be on the same machine as the client or on separate machines.
- The *QA*Director application and **Manual Testing** run on the client machines.

The following figure shows the recommended *QA*Director system configuration.



NOTE

*QA*Director also includes several add-on components to use on a client:

- *QA*Director SDK. For more information, see Installing the QADirector SDK [p. 35].
- **QADirector Integration Plug-In**. For more information, see Installing the QADirector Integration Plug-In [p. 37].
- **QADirector Manual Test Import Utility**. For more information, see Installing the QADirector Manual Test Import Utility [p. 45].

License Usage

The following table lists the *QA*Director components and license usage. Note that license usage is based on component, not on machine. So, if you run the ***QA*Director Client** application and **Manual Testing** on the same machine, two licenses are checked out.

***QA*Director Component/Utility**	**Checks out license**
APIs	Yes
Client application	Yes
Manual Testing	Yes
QADirector Integration Plug-In	Yes
QADirector Manual Test Import Utility	Yes
Test Execution Agent	No
Test Management Server	No
Web server application	No

Installing the *QA*Director Web Server

This section describes how to install *QA*Director on the web server machine. Typically a system/database administrator performs this task.

NOTE

For Windows 7, you must install and configure the *QA*Director application server using the built-in Administrator Account.

1. From the installation media browser, navigate to the ***QA*Director** tab.
2. Click **Install *QA*Director**. The ***QA*Director InstallShield Wizard** dialog box appears.
3. Click **Next**. The **License Agreement** screen appears.
4. Read the license agreement and click **Yes** to accept the terms of the agreement. The **Customer Information** screen appears.
5. Type your name and company in the **User Name** and **Company Name** fields and click **Next**. The **Choose Destination Location** screen appears.
6. Select a location for the *QA*Director installation. To specify a location other than the default, click **Browse** and select an existing folder or type the path name in the **Path** field. Click **OK.** Click **Next**. The **Select Features** screen appears.
7. Select the features to install, and clear the check boxes next to any feature that is not being installed. These services can be installed separately and on different machines.
   a) Click the name of each component to view a brief description in the **Description** field.
   b) If you are installing the *QA*Director application, the **Application Server** is a required component.
   c) Installing *QA*Director creates the following services:

COS
The server-side platform for cross-product integration. If COS is already installed, it will be removed, and the current version is installed.

QADirector Scheduler (qacscheduler.exe)
This service is used to schedule application events.

QADirector Subscriber (tmsubscriber.exe)
This service is used to get subscription messages from COS.

QADirector Test Management Service (qc_tmsrv.exe)
This service is installed with the **Test Management Server** and is used to schedule *QA*Director jobs and manage machines available for test execution.

TrackRecord SDK service (trsdkservicestub11.exe)
This service should be started to view defects and to run queries against TrackRecord.

d) Installing *QA*Director creates the following virtual directories in IIS:

- `qadirector`: required to run the *QA*Director application.
- `tpservices`: required for *QA*Director to retrieve scripts from TestPartner.

e) Selecting **Integration Services** installs the required components to integrate with the selected product. This does not install the actual product.

NOTE

If you are migrating from a previous version of *QA*Director, do not select the database at this step. After this installation is completed, follow the instructions in Migration [p. 26]. If you are using a database server, do not select the database at this step. If you are installing these services on Windows Server 2008 with IIS7, see Additional Installation and Configuration [p. 49].

f) ***QA*Director Services** include Application Server, Test Management Server and SQL Server 2005 Express Edition.

8. After selecting the features to install, click **Next**. If you did not select a database in the previous step, a message appears stating that a database is required to use *QA*Director
9. If there is already one or more web sites in IIS, the **Select a Web Site** screen appears. In the **Web Sites** list, select the web site to use to install *QA*Director, and click **Next.**
10. The **Select Program Folder** dialog appears. Select the `Program Folder` for *QA*Director. You can accept the default folder, or select a different folder from the list. Click **Next**. The **Start Copying Files** screen appears
11. Review your settings before starting the installation and click **Next** to begin the installation. To make any changes, click **Back** to return to the previous screen. A progress bar appears and indicates the progress while installing the application. If you are prompted to restart your computer, select the **Restart Your Computer** check box to restart it now.
12. Click **Finish** to complete the *QA*Director Web Server installation.

Installing the Test Management Server

The **Test Management Server** reads job submissions from the database, manages jobs, tracks the machines available for test execution, and reports the status of jobs in progress. In order to perform automated testing, a **Test Management Server** and **Test Execution Agent** must be running.

This application runs as a service and can reside on the same machine as the web server, or on separate machines.

The **Test Management Server** can be installed during the main *QA*Director application installation on the web server, or separately on a different machine. To install the **Test Management Server** after installing *QA*Director:

1. From the installation media browser, navigate to the *QA*Director tab.
2. Click **Install *QA*Director**. The ***QA*Director InstallShield Wizard** dialog box appears.
3. Click **Next**. The **License Agreement** screen appears.
4. Read the license agreement and click **Yes** to accept the terms of the agreement. The **Customer Information** screen appears.
5. Type your name and company in the **User Name** and **Company Name** fields. Click **Next**. The **Choose Destination Location** screen appears.
6. Select a location for the **Test Management Server** installation. To specify a location other than the default, click **Browse** and select an existing folder or type the path name in the **Path** field. Click **OK.**
7. Click **Next**. The **Select Features** screen appears.
8. Select **Test Management Server** and click **Next**. If you have not configured a database on this machine, a message appears warning that *QA*Director will not function properly until a database is configured. Click **Yes** to continue. The **Select Program Folder** screen appears.
9. Select the **Program Folder** for *QA*Director. You can accept the default folder, or select a different folder from the list. Click **Next**. The **Start Copying Files** screen appears.
10. Review your settings before starting the installation. To make any changes, click **Back** to return to the previous screen.
11. Click **Next** to begin the installation. A progress bar appears and indicates the progress while installing the server. Select the**Display Release Notes** check box to review the information in the Release Notes file. This file contains information about new features, technical notes, and any known issues that may enhance or impact the performance of *QA*Director. Release Notes contain recent changes that may not be included in your *QA*Director product documentation.
12. Click **Finish** to complete the **Test Management Server** installation.

CHAPTER 4

Installing the *QA*Director Database

This chapter describes the steps required to manually install a database. If you are migrating or if you installed a database during the *QA*Director installation, you do not need to manually install a database.

This section explains the installation process for the *QA*Director database. Before starting the installation:

- Review the system requirements to ensure the database will install and operate properly for each *QA*Director component product.
- Micro Focus recommends that you exit all non-essential Microsoft Windows programs before running the setup program. Some Microsoft Windows programs may interfere with the installation process.
- Back up existing databases. If you have previous component product databases installed, Micro Focus recommends that you back up your data.

There are two different ways to create the database: automatically with the installation media or manually. Manually creating and configuring a database consists of a series of procedures. To simplify this process, Micro Focus provides an installation directly from the product installation media.

NOTE

Use the database installation from the installation media if you do not have database administration experience.

Installing and Configuring Oracle

Oracle Server Requirements

- Existing database server instance that runs a supported version of Oracle.

- You must create an Oracle service prior to installing the QADirector Oracle database. For more information, see Creating an Oracle Client Service Name [p. 19].
- Use the following information to configure the database instance:
  - For Oracle 9i, in order to improve *QA*Director performance, it is recommended to set the `Optimizer_mode` (see `init.ora`) to '`ALL_ROWS`' instead of any Rule-based modes. Note that in Oracle 10g and later, the Rule modes are deprecated, default value of `Optimizer_mode` is '`ALL_ROWS`', and the Cost-based optimizer has been greatly improved.
  - Unless Windows NT native security is used for your authentication service, it is recommended to set the value of `SQLNET.AUTHENTICATION_SERVICES` to `NONE` instead of `NTS`. This parameter is located in the `sqlnet.ora` file.
  - When the Oracle database instance is defined, specify the *`Storage Character Set`* as `iso 8859-1 West European`.
  - Set the *`NLS_LANGUAGE`* parameter file as: *`NLS_LANGUAGE = 'AMERICAN'`*. If you are using Windows 2000, set the *`NLS_LANGUAGE`* parameter to *`AMERICAN_AMERICA.WE8ISO8859P1`* in the following locations:

    ```
    HKEY_LOCAL_MACHINE\SOFTWARE\ORACLE\NLS_LANG
    HKEY_LOCAL_MACHINE\SOFTWARE\ORACLE\ALL_HOMES\IDO\NLS_LANG
    HKEY_LOCAL_MACHINE\SOFTWARE\ORACLE\HOME-\NLS_LANG
    ```

  - Oracle user ID and password to allow the *QA*Director administrator to set up the database.

Oracle Login

When installing a database, you are prompted to enter Login Information. For any non-DBO user, the user must have the following minimum permissions:

- The user must have permissions to use the objects created by the installer.
- The user must have the *`ALTER ANY SEQUENCE`* permission.

NOTE

Tip: For assistance with setting permissions, contact your database administrator.

Installing the Oracle Database

To install the Oracle database:

1. Log on to the database server as a user with administrator permissions.
2. From the installation media, click the ***QA*Director** tab.
3. Click **Install *QA*Director Database**. The ***QA*Director Database Installation** wizard appears.
4. Click **Next**. The **License Agreement** screen appears.
5. Read the license agreement and click **Yes**. The **Database Management System** screen appears.
6. Select Oracle 9i or 10g and click **Next**. The **Oracle Server Login Information** screen appears. Type the following information in the appropriate fields:

- **Service**: Service name. For more information, see Creating an Oracle Client Service Name [p. 19].
- **Login**: User/schema name.
- **Password**: User password.

7. Click **Next**. The **Database Information** screen appears. Type the following information:
   - **Name**: Create a user account by entering user name for the database.
   - **Password**: Enter a password for the user account. A schema with this name is also created.
8. Click **Next**. The **Review Settings** screen appears. Review your settings before starting the installation. Click **Back** to go back and change a setting, or click **Next** to begin the installation. A progress bar appears while the database is being created.
9. At the end of the installation, the **Command Results** screen displays a log containing all commands that were executed during the database creation. To save the log, select the text, then copy and paste this information into a text file. Save this log file.
10. Click **Next**. Click **Finish** to complete installation of the *QA*Director Oracle database.

Configuring the Oracle Database

This section provides information about configuring *QA*Director to use an Oracle database. The *QA*Director installation includes the files to execute scripts and create the required tables. To configure the database tables:

1. Create a user account with database administrator privileges for *QA*Director.
2. Login to Oracle as the user you just created.
3. Navigate to the `Oracle` directory on the installation media:
   a) Click **Explore this Media**. A Microsoft Windows Explorer window opens.
   b) Navigate to: `QM Setup\QADirector\Database\sqlscripts\Oracle`
   c) Execute the following scripts for *QA*Director in order:
      i. 1_orcl.sql
      ii. 2_orcl.sql
      iii. 4_common.sql
      iv. 5_orcl.sql
4. Log out of Oracle.

Creating an Oracle Client Service Name

To create an Oracle client service name:

1. Open the Net Configuration Assistant.
2. Select **Local Net Service Name Configuration**. Click **Next**.
3. Select **Add**. Click **Next**.

4. Type a service name in the **Service Name** (Instance Name or Database Name) field. Click **Next**.
5. Select **Communication Protocol** (TCP). Click **Next**.
6. Type a server name in the **Host Name** field. Validate the **Port number** (host: 1521). Click **Next**.
7. Select **Yes** to perform a test. Click **Next**.
8. Validate the test results. If the Test fails, fix the errors and retest. Click **Next**.
9. Type a Net service name in the Net Service Name field and click Next. Click **Finish**.

Installing and Configuring Microsoft SQL Server

Microsoft SQL Server Requirements

- Existing database server instance that runs a supported version of Microsoft SQL Server.
- Use the following specifics to configure the database instance:
  - Microsoft SQL Server must be case insensitive at the time of installation.
  - If the database instance is defined, you must specify code page 1252 and sort order 52, also known as ISO 8859-1.
  - If you are using Microsoft SQL Server, specify the SQL_Latin1_General_CP1_C1_AS collation.
- Microsoft SQL Server user ID and password to allow the administrator to set up the database.

About the Microsoft SQL Server Express Default Database

The following lists the default values used for the default Microsoft SQL Server Express database:

Server

```
<localhost>\QACInst
```

Database

```
QADirector
```

Schema

```
dbo
```

Login name

```
sa
```

Password

```
qacenter
```

Microsoft SQL Server Login

While installing a database, you are prompted to enter login Information. The database login account must be assigned to `db_owner` or `db_ddladmin` or a user-defined role that has statement permissions (**`Create Table`**, **`Drop Table`**, **`Alter Table`**, **`Create Procedure`**, **`Drop Procedure`**,

`Create View`, **`Drop View`**,) and object permissions (**`Insert`**, **`Select`**, **`Delete`**, **`Update`**, **`Execute`**, **`References`**).

NOTE

In SQL 2005, be sure to associate the schema to the user, for example:

CREATE SCHEMA <YourSchema> AUTHORIZATION <QADUserID>

ALTER USER <QADUserID> WITH DEFAULT_SCHEMA = <YourSchema>

Installing the Microsoft SQL Server Database

To install the Microsoft SQL Server database:

1. Log on to the database server as a user with administrator permissions.
2. From the installation media, click the ***QA*Director** tab.
3. Click **Install *QA*Director Database**. The ***QA*Director Database Installation** wizard appears.
4. Click **Next**. The **License Agreement** screen appears.
5. Read the license agreement and click **Yes**. The **Database Management System** screen appears.
6. Select Microsoft SQL Server 2000 or Microsoft SQL Server 2005 and click **Next**. The **Microsoft SQL Server Login Information** screen appears. Type the following information in the appropriate fields:
   - **Server**: Database server name.
   - **Login**: Database user name.
   - **Password**: User password.
7. Click **Next**. The **Database Information** screen appears. You can accept the default name or type the database name. Click **Next.**
8. The **User Account Information** screen appears. Optionally, you can specify a unique login name and password to use with this database, or leave the fields blank. Click **Next**.
9. Review your settings before starting the installation. Click **Back** to go back and change a setting, or click **Next** to begin the installation. A progress bar appears during database installation. At the end of the installation, the **Command Results** screen displays a log containing all commands that were executed during the database creation. To save the log, select the text, then copy and paste this information into a text file. Save this log file.
10. Click **Next** and then **Finish** to complete the database installation.

Configuring the Microsoft SQL Server Database

This section provides information about configuring *QA*Director to use a Microsoft SQL Server database. The *QA*Director installation includes the files to execute scripts and create the required tables. To configure the database tables:

1. Login to Microsoft SQL Server as a user with administrative privileges.
2. Navigate to the `MSSQL` directory on the installation media:

a) Click **Explore this Media**. A Microsoft Windows **Explorer** window opens.
b) Navigate to: `QM Setup\QADirector\Database\sqlscripts\MSSQL`.
c) Execute the following scripts in this order:

i. `1_mssql.sql`

ii. `2_mssql.sql`

iii. `4_common.sql`

iv. `5_mssql.sql`

3. Log out of Microsoft SQL Server.

Maintaining the Microsoft SQL Server Database

In addition to standard database maintenance procedures, be sure to verify index fragmentation. In order to maintain optimal performance, it is recommended to defrag/rebuild the indexes if fragmentation exceeds thirty percent.

The following example examines and rebuilds indexes which exceed thirty percent fragmentation on all Microsoft SQL Server tables used by *QA*Director. Depending on the amount of data in the database, this script may take several minutes to complete.

```
/*Perform a 'USE <database name>' to select the database in which to run the script.*/
-- Declare variables
SET NOCOUNT ON
DECLARE @tablename VARCHAR (128)
DECLARE @execstr   VARCHAR (255)
DECLARE @objectid  INT
DECLARE @indexid   INT
DECLARE @frag      DECIMAL
DECLARE @maxfrag   DECIMAL

-- Decide on the maximum fragmentation to allow
SELECT @maxfrag = 30.0

-- Declare cursor
DECLARE tables CURSOR FOR
   SELECT TABLE_NAME
   FROM INFORMATION_SCHEMA.TABLES
   WHERE TABLE_TYPE = 'BASE TABLE' AND TABLE_NAME LIKE 'QAC_WB%'

-- Create the table
CREATE TABLE #fraglist (
   ObjectName CHAR (255),
   ObjectId INT,
   IndexName CHAR (255),
   IndexId INT,
   Lvl INT,
   CountPages INT,
   CountRows INT,
   MinRecSize INT,
   MaxRecSize INT,
   AvgRecSize INT,
   ForRecCount INT,
   Extents INT,
   ExtentSwitches INT,
   AvgFreeBytes INT,
   AvgPageDensity INT,
   ScanDensity DECIMAL,
   BestCount INT,
   ActualCount INT,
   LogicalFrag DECIMAL,
   ExtentFrag DECIMAL)

-- Open the cursor
OPEN tables
```

```
-- Loop through all the tables in the database
FETCH NEXT   FROM tables   INTO @tablename

WHILE @@FETCH_STATUS = 0
BEGIN
 -- Do the showcontig of all indexes of the table
 INSERT INTO #fraglist
  EXEC ('DBCC SHOWCONTIG (''' + @tablename + ''')  WITH FAST, TABLERESULTS, ALL_INDEXES,
NO_INFOMSGS')

   FETCH NEXT FROM tables INTO @tablename
END

-- Close and deallocate the cursor
CLOSE tables
DEALLOCATE tables

-- Declare cursor for list of indexes to be defragged
DECLARE indexes CURSOR FOR
 SELECT ObjectName, ObjectId, IndexId, LogicalFrag FROM #fraglist
  WHERE LogicalFrag >= @maxfrag
  AND INDEXPROPERTY (ObjectId, IndexName, 'IndexDepth') > 0

-- Open the cursor
OPEN indexes

-- loop through the indexes
FETCH NEXT FROM indexes INTO @tablename, @objectid, @indexid, @frag

WHILE @@FETCH_STATUS = 0
BEGIN
 PRINT 'Executing DBCC DBREINDEX ("' + RTRIM(@tablename) + '")'
 SELECT @execstr = 'DBCC DBREINDEX ("' + RTRIM(@tablename) + '")'
 --SELECT @execstr = 'DBCC INDEXDEFRAG (0, ' + RTRIM(@objectid) + ', ' + RTRIM(@indexid)
+ ')'
 EXEC (@execstr)

 FETCH NEXT FROM indexes INTO @tablename, @objectid, @indexid, @frag
END

-- Close and deallocate the cursor
CLOSE indexes
DEALLOCATE indexes

-- Delete the temporary table
DROP TABLE #fraglist
GO
```

CHAPTER 5

Configuring *QA*Director

Configuring *QA*Director to use Microsoft SQL Server

To configure *QA*Director for Microsoft SQL Server:

1. Click **Start>All Programs>Micro Focus>QADirector>System Configuration**. The **QADirector - System Configuration** dialog box appears.
2. Enter appropriate values into the following fields:
   a) Select Microsoft SQL Server from **Database type**.
   b) Type the server name in the **Server** field.
   c) Type the database name in the **Database** field.
   d) Type the schema name in the **Schema** field.
   e) Type the login ID in the **Login name** field.
   f) Type the login password in the **Password** field.
3. Click **Test Connection** to validate the configuration. If the test is successful click **Connect**. A message verifying the connection appears and the service restarts. When you have successfully connected, click **Close** to close.

Configuring *QA*Director to use Oracle

To configure *QA*Director for Oracle on the Web server, you must first create an Oracle Net Service name. See Creating an Oracle Client Service Name [p. 19]

NOTE

Micro Focus recommends using the Oracle driver instead of the Microsoft driver when connecting to the *QA*Director database.

1. Click **Start>All Programs>Micro Focus>QADirector>System Configuration**. The ***QA*Director - System Configuration** dialog box appears.
2. Enter appropriate values into the following fields:

a) Select **`Oracle`** from **Database type**.
b) Type the service name in the **Service** field.
c) Type the schema name in the **Schema** field.
d) Type the login name in the **Username** field.
e) Type the password in the **Password** field.

3. Click **Test Connection** to validate the configuration. If the test is successful click **Connect**. A message verifying the connection appears and the service restarts. When you have successfully connected, click **Close**.

Configuring the Oracle 9.2 Client and Above

1. Locate the Oracle Install folder in the Oracle installation directory.
2. Right-click on the folder and choose **Properties**. The **Properties** dialog box appears.
3. Click **Security**. If the Security tab is not visible, navigate to Microsoft Windows Explorer and click **Tools>FolderOptions>View** and clear the **Use Simple File Sharing** option.
4. Click **Add**. The **Select Users or Groups** dialog box appears. Add the following users with full permissions:
   a) IWAM_<MachineName>
   b) IUSR_<MachineName>
   c) ASPNET
   d) Everyone
5. Click **OK** and then click **Advanced**. Select **Allow inheritable permissions from parent to propagate to this object**.
6. Click **OK** to exit.

Migration

If you have a database from the previous version of *QA*Director or CARS Workbench 5.3.x, you can migrate it to *QA*Director Release 6.0.

The following tips are provided to help ease the transition to the current version of *QA*Director. For additional information on any of the tips, refer to the online help.

NOTE

It is recommended to restart the Microsoft SQL Server services after migration to clear up the tempdb database.

NOTE

After a database migration, the administrator should always verify that the change history settings were migrated accordingly.

Migration Tips

Before Migration

*QA*Director 6.1 tracks project health based on design time cycles and actual execution cycles for tests. To help track accurate data for quality index calculations, you should map cycles to result folders prior to migration, as follows:

1. From the **Project properties** screen, select the **Requirement** tab and click **Map Folder Cycles**.
2. Map the design time **Test Cycles** to the appropriate **Result folders**. You may also need to re-arrange jobs within the result folders based on the planned execution criterias.

   NOTE

   Only public result folders can be mapped to design time cycles.

3. Repeat these steps for each project.

After Migration

- All tests in a project are listed in the **Tests Center**. After migration, all tests are placed in the `Default Test Folder`. You have the option of creating new test folders, then using search folders to sort and organize the tests.
- Jobs can contain either automated or manual scripts. If there are jobs prior to migration that included both types of scripts, the job is separated into two jobs.

To Migrate the Database

NOTE

- Use an account with administrator privileges the first time you login to *QA*Director after migrating the database.
- For Microsoft SQL Server, verify that the **Simple Recovery Model** is selected.

1. Install the web server portion of *QA*Director without installing a database. See Installing the QADirector Web Server [p. 13].
2. Install the Test Management Server. See Installing the Test Management Server [p. 15].
3. Click **Start>All Programs>Micro Focus>QADirector>System Configuration**. The **System Configuration** dialog box appears. Enter the connection information for the database to upgrade and click **Test Connection**. If the connection succeeds, a message appears saying that “The connection to the database was successful however the database requires an upgrade.” Click **OK** to continue. See Configuring QADirector [p. 25].
4. Click **Upgrade** to upgrade the database to the current version of *QA*Director. A warning appears, reminding you to backup your database. Click **Yes** to continue.
5. Login to *QA*Director using the admin account. A progress bar appears with a message that the web server is restarting. A progress bar then appears to show progress of the migration.

NOTE

Depending on the size of the existing database, the migration may take a long time to complete.

6. When the migration is completed, a message appears confirming successful completion of the migration. Enter the database password.
7. Close the **System Configuration** dialog box.

   When the migration has completed:

   - Micro Focus recommends creating a backup of the database after migration. DO NOT overwrite the pre-migration backup of the database.
   - If you changed the **Recovery Model** prior to migration, check with your database administrator for the appropriate setting.

Configuring Logging

*QA*Director contains a configuration file on the web server that you can use to modify the amount of logging for certain *QA*Director server components.

NOTE

Modifying the default settings may impact performance.

1. Navigate to the root of the *QA*Director installation directory on the *QA*Director web server.
2. Open the `TMApp.config` file with a text editor or XML editor.
3. Navigate to the `<Logging>` node.
4. Navigate to one of the following nodes to select a component:

   <OQAD-WebServices>
   *QA*Director web server.

   <OQAD-Scheduler>
   *QA*Director Scheduler.

   <OQAD-Subscriber>
   *QA*Director Subscriber.

   <OQAD-SystemConfiguration>
   *QA*Director database configuration.

   <OQAD-TestManagement>
   *QA*Director **Test Management Server**.

5. Move to the `<root>.<Level>` node. In the `Value` attribute, type in one of the following values exactly as they appear below:

Value	Description
`OFF`	Logging is turned off.

Value	Description
`FATAL`	A log is created for any fatal errors.
`ERROR`	General and fatal errors are logged.
`WARN`	General errors are logged.
`DEBUG`	Informational errors are logged.
`INFO`	Informational errors are logged.
`TRACE`	Informational errors are logged.
`ALL`	All errors are logged.

6. Save the file and close it. You will need to restart IIS for the changes to take affect.

CHAPTER 6

Accessing *QA*Director

After installing the Web Server, provide users with the URL for the **Application Links** web page so that they can install and run *QA*Director. From this web page, each user can install and run the *QA*Director client, **Manual Testing**, and a **Test Execution Agent**.

Starting *QA*Director

To start *QA*Director, open a browser and type the following in the **Address** field:

```
http://<servername>/qadirector/default.aspx
```

Firefox 3.5

If you use Firefox 3.5, you need to choose one of the following Firefox add-ons in order to start *QA*Director:

- Microsoft .NET Framework Assistant 1.1 - *https://addons.mozilla.org/en-US/firefox/addon/9449*
- IE Tab - *https://addons.mozilla.org/en-US/firefox/addon/1419*

Licensing

The license for each client is installed on the web server. The evaluation license supplied with your installation allows you to install the product and run it for a specific period of time without first installing a license. At any time during the evaluation period, you can obtain and install a permanent license. When the evaluation period expires, you must obtain a license and install it before you can successfully run this product. For instructions on installing a license, refer to the *Distributed License Management Installation Guide*, located on the installation media.

Client Installation

The web address of the *QA*Director installation is given to the testers, who then access the URL to complete the *QA*Director client installation. To install the *QA*Director client:

1. Navigate to the *QA*Director web server:

   ```
   http://<servername>/qadirector/default.aspx
   ```

2. Click ***QA*Director**. The **Application Run Security Warning** appears. Click **Run** to start the installation. A progress bar appears during installation.
3. After installation, the **Login** screen appears. Type the user name and password in the appropriate fields, click **OK**. The default administrator account for *QA*Director is **`admin`**, and the password is **`admin`**, all lowercase.
4. If your environment uses more than one client, the **Open Client** dialog box appears. Select the client to use and click **OK**.
5. *QA*Director opens and displays the **List of Projects Center**.

Installing a Test Execution Agent

A **Test Execution Agent** can be installed on any machine, including the machine running the *QA*Director client. It can also be installed on a separate machine by itself. To install a **Test Execution Agent**:

1. Navigate to the *QA*Director web server:

   ```
   http://<servername>/qadirector/default.aspx
   ```

2. Click **Install Test Execution Agent**. The **Application Install Security Warning** appears.
3. Click **Install** to start the installation. A progress bar appears during installation.
4. When installation is complete, the **Test Execution Agent** starts and the icon appears in the system tray.

   NOTE

   The **Test Execution Agent** is stopped when a machine is shut down or re-booted. You can automatically start the **Test Execution Agent** by adding it to the Microsoft Windows Startup options.

Installing RUMBA

The following installation steps apply to users wanting to execute Hiperstation and MVS Batch tests only.

The following instructions guide you through installing RUMBA on the **Test Execution Agent** in order to execute a Hiperstation or MVS Batch test.

NOTE

The Hiperstation and MVS Batch integrations use RUMBA as the mainframe emulator. When executing a Hiperstation or MVS Batch test, if there is a copy of RUMBA running, it must be closed before submitting the test for execution.

1. Click **Install RUMBA** from the media.
2. Click **Next** on the **Welcome** screen.
3. Read the license agreement and click **Yes** on the **License Agreement** screen.

4. Click **Install** on the **Ready to Install** screen to begin installation.
   The installation dialog opens and installs RUMBA. It will close when installation is complete.

Configuring RUMBA

This topic describes how to configure RUMBA to use a mainframe server.

Prerequisites

You need to install RUMBA from the media before configuration.

Before executing scripts, you need to install and configure RUMBA.

1. On the **Test Execution Agent** machine where RUMBA is installed, navigate to `C:\QADTN3270Macro`.
2. Double click the `A.WDM` file to edit it.
3. If you receive an error message, click **OK**.
4. Click **Connection>Configure**.
5. Make sure that `TN3270` is selected in the **Installed Interfaces** group.
6. Click the **TN3270** tab.
7. Click the **Insert** button.
8. On the **TELNET: New IP Name/Address** dialog box, add the appropriate mainframe destination into the **Destination Name/Address** field.
9. Click **OK**.
10. Ensure that the value you added is at the top of list. If it is not, move it to the top.
11. Click **OK**.
12. In the **RUMBA** window, click **Save** to save the configuration you just entered.

CHAPTER 7

Installing the *QA*Director SDK

1. From the Quality Management installation media, click the ***QA*Director** tab.
2. Click **Install *QA*Director Software Development Kit**.
3. From the dialog box that opens, click **Run** to start the installation.
4. Walk through the installation steps to install the SDK. After installation, code samples, documentation, and the SDK libraries will be installed on your machine.
5. Click **Start>All Programs>Micro Focus>QADirector>*QA*Director SDK>Integration and SDK Reference** to open the documentation to get started with the SDK.

CHAPTER 8

Installing the QADirector Integration Plug-In

The **QADirector Integration Plug-In** provides an automated integration solution between *QA*Director and several requirements management applications. The **QADirector Integration Plug-In** needs to be installed and configured on the requirements management client machine to function. To install the **QADirector Integration Plug-In**:

1. Log on as a user with administrator permissions.
2. Run the **QADirector Integration Plug-In** installation media. The **QADirector Integration Plug-In** wizard appears.
3. Click **Next**. The **License Agreement** screen appears.
4. Review the license agreement, and click **Yes**. The **Customer Information** screen appears.
5. Type the user name and company name in the appropriate fields and click **Next**. The **Choose Destination Location** screen appears.
6. Select a location for the installation. To specify a location other than the default, click **Browse** and select an existing folder or type the path name in the **Path** field. Click **Next.**
7. The **Select Features** screen appears. Select the plugins to install from the **Requirements Management** tree view and click **Next**.
8. The **Select Program Folder** screen appears. Select the folder to use for the installation, and click **Next**.
9. The **Start Copying Files** screen appears. Review the settings and click **Next** to begin the installation. To make any changes, click **Back** to return to the previous screen.
10. The **Setup Status** screen appears and displays the progress for the installation. If Adobe Reader is not installed on the machine, a message appears stating that Adobe Reader is required for viewing the online books. Click **OK**. When installation is complete, the **QADirector Integration Plug-In** displays a message that the installation is finished. Click **Finish** to complete the installation.

CaliberRM

Upgrade to 6.1

This topic describes how to configure CaliberRM after upgrading the **QADirector Integration Plug-In** to 6.1.

1. In CaliberRM, click **Tools>Options>Custom Tools**.
2. Click on the *QA*Director options (*QA*Director Login, *QA*Director Create, *QA*Director Update, *QA*Director Reset, *QA*Director Logout) and update the **Command or Document path** to:

   ```
   Program Files\Micro Focus\QADirector Integration Plug-Ins\qadcaliberrm.exe
   ```

Migrating from *QA*Director 5.3.1

If you have used the **QADirector Integration Plug-In** in *QA*Director 5.3.1, you need to migrate after installation.

1. Update existing CaliberRM user defined attributes with the new names. For more information, see Required QADirector Custom Attributes [p. 41].
2. Add all new attributes to CaliberRM. For more information, see Required QADirector Custom Attributes [p. 41].
3. Open the utility's installation directory and run the `QADCaliberRMMigrationTool.exe` migration utility. A login form will display to provide credentials to login to the CaliberRM server. If the login provided is correct, a list of all of the projects available on that CaliberRM Server with checkboxes next to each name is shown. Check the checkbox for each project to migrate, then click **Update**. The utility searches through all of the CaliberRM requirement types in the checked project list, discovers the types that have the proper *QA*Director attributes, and then adds the default values needed to re-integrate with *QA*Director. The default values are as follows:

   - QADirector Client ID = 0
   - QADirector Client Name = Client – QADirector
   - QADirector Requirement Folder ID = 1
   - QADirector Requirement Folder Name = Default Requirement Folder

   The utility also updates the QADirector Database Key attribute. With the *QA*Director 5.3.1 integration, a CaliberRM traceid was added to the end of the database key, the utility will remove the traceid and also remove the Trace from CaliberRM if it exists.

Configuring CaliberRM to Integrate with QADirector

Create Menu Options in CaliberRM

The **QADirector Integration Plug-In** requires you to manually create **Tools** menu options to launch the integration.

1. In CaliberRM, click **Tools>Options>Custom Tools**.

2. In the **Custom Tools** list, create the following entries by clicking on the **New** icon for each entry:

   QADirector Login

   Command or Document

   Browse to the installation directory of the **QADirector Integration Plug-In** and select `QADCaliberRM.exe`.

   Arguments

   `Login`

   QADirector Create

   Command or Document

   Browse to the installation directory of the **QADirector Integration Plug-In** and select `QADCaliberRM.exe`.

   Arguments

   `Create`

   QADirector Reset

   Command or Document

   Browse to the installation directory of the **QADirector Integration Plug-In** and select `QADCaliberRM.exe`.

   Arguments

   `Reset`

   QADirector Update

   Command or Document

   Browse to the installation directory of the **QADirector Integration Plug-In** and select `QADCaliberRM.exe`.

   Arguments

   `Update`

   QADirector Logout

   Command or Document

   Browse to the installation directory of the **QADirector Integration Plug-In** and select `QADCaliberRM.exe`.

   Arguments

   `Logout`

3. Click **OK**.

Creating a CaliberRM Requirement Type

1. Right click a project and click **New**>**Requirement Type**. This Requirement Type will be used to contain all *QA*Director requirements.
2. Provide a Name and Tag for the Requirement Type and click **Next**.

3. Type in a description and click **Next**.
4. Click **New** on the next screen to create a tab for the Requirement Type. Click **OK**. Click **Next**.
5. Select the **Show all requirement information and allow users to add requirements** option. Click **Next**.
6. Select the **Everyone (Any)** option. Click **Next**.
7. Keep the defaults on the next screen, then click **Next**.
8. Verify that your project is selected and click **Next**.
9. Click **Finish** on the last screen.

The Requirement type and tab are created. The next step is to create the *QA*Director Custom Attributes.

Creating Required *QA*Director User Defined Attributes in CaliberRM

This procedure will walk you through creating the required user defined attributes in CaliberRM.

1. In CaliberRM, right click the requirement type which will have your *QA*Director user defined attribues and select **Modify**.
2. Select the custom tab from the **Custom Tabs** list and click **Edit**.
3. You will repeat the following steps for each required *QA*Director user defined attribute. See Required QADirector Custom Attributes [p. 41]. In the **Edit Custom Tab** dialog box, click the **New** button to open the **User-Defined Attribute Creation Wizard**.

   a) **Step 1 of 5**

   What would you like to name this attribute?
   Type or paste in the name of the *QA*Director user defined attribute.

   What type of attribute would you like this to be?
   - Use `Single text line` for fields of `128` characters in size.
   - Use `Multiple line text field` for fields of `2000` characters in size.

   Description
   Optinally provide a description for this user defined attribute. Click **Next**.

   b) **Step 2 of 5**

   Min. Characters
   Enter `0`.

   Max Characters
   Enter either `128` or `2000`, depending on the user defined attribute.

   Default Text
   Do not enter default text. Click **Next**.

   c) **Step 3 of 5**

   Select **Use the attributes default value**. Click **Next**.

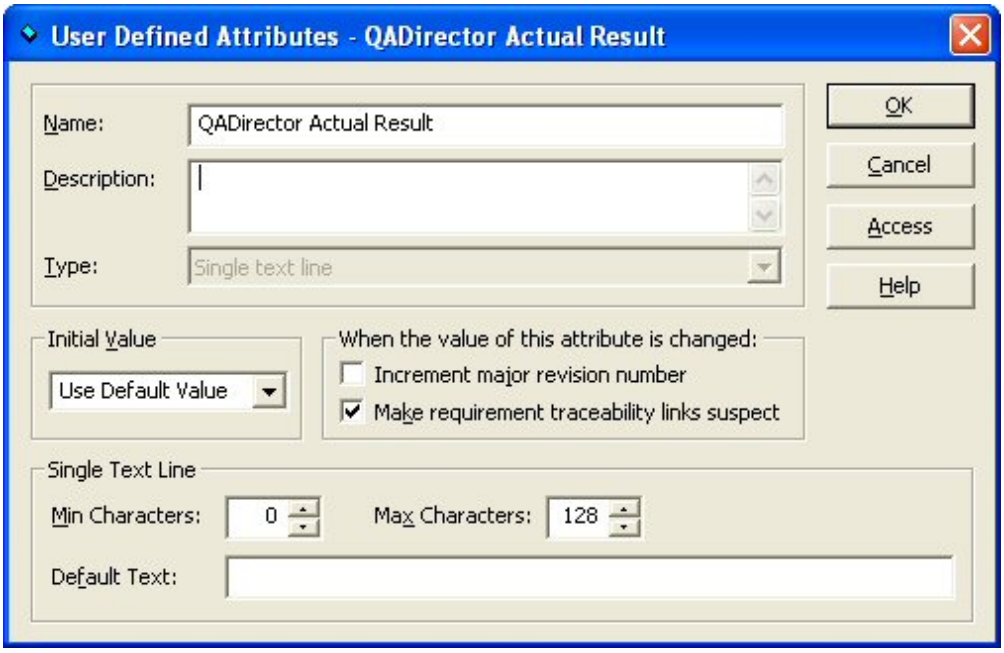
   d) **Step 4 of 5**

   Select **Make the requirement's traceability link suspect**. Click **Next**.

e) **Step 5 of 5**

Select the defaults and click **Next** and then **Finish**.

The following example is what a user defined attribute in CaliberRM should look like:



Repeat step 3 and all of its subtasks for each required *QA*Director attribute.

Refer to the **QADirector Integration Plug-In** online help for more information.

Required *QA*Director Custom Attributes

The table below lists the required custom attributes that must be created in your requirements management tool in order to integrate with *QA*Director.

If you are migrating from a previous release, rename the custom attributes to the new name. See the **Prior Name** column for the previous version name.

Table 1. Required *QA*Director Attributes

Name	Max Characters	Description	Prior Name
`QADirector Actual Result`	`128`	Contains a `Pass`, `Fail`, or `Null` value. For Tests, it is the last result of the test from when it was executed in an Execution Plan. In *QA*Director you can view this field in the **Coverage View** of the **Requirements Center**.	`QACenter Actual Result`
`QADirector Asset ID`	`128`	Unique Asset ID field from *QA*Director.	`QACenter Requirement ID`
`QADirector Asset Name`	`2000`	Name of the asset in *QA*Director.	`QACenter Test Name`

Name	Max Characters	Description	Prior Name
*QA*Director Asset Type	128	Name of the Asset type in *QA*Director, either Requirement or Test.	QACenter TestType
*QA*Director Client ID	128	Unique ID of the *QA*Director Client. Do not modify the value returned from *QA*Director.	
*QA*Director Client Name	2000	Name of the *QA*Director Client.	
*QA*Director Create Tests	128	This field is Null or True, depending on whether **Use leaf nodes to create tests** was checked during the Create or Update of the integration.	
*QA*Director Database ID	128	Unique ID of the *QA*Director database. Do not modify the value returned from *QA*Director.	QACenter Database ID
*QA*Director Defect ID	2000	Delimited string of IDs corresponding to defects.	QACenter Defect ID
*QA*Director Execution Plan ID	128	Unique ID of the *QA*Director Execution Plan if **Create new Execution Plan** was checked during the Create or Update of the integration.	QACenter Suite Node ID
*QA*Director Execution Plan Name	2000	Name of the *QA*Director Execution Plan if **Create new Execution Plan** was checked during the Create or Update of the integration.	QACenter Suite Name
*QA*Director Fail Count	128	Total count of failed tests for a Requirement. In *QA*Director you can view this field in the **Coverage View** of the **Requirements Center**.	
*QA*Director Last Result Update	128	Indicates the last time that the integration Update function was performed.	QACenter Last Result Update
*QA*Director Pass Count	128	Total count of passed tests for a Requirement. In *QA*Director you can view this field in the **Coverage View** of the **Requirements Center**.	
*QA*Director Project ID	128	Unique ID of the *QA*Director project. Do not modify the value returned from *QA*Director.	QACenter Project ID
*QA*Director Project Name	2000	Name of the *QA*Director project.	QACenter Project Name
*QA*Director Requirement Folder ID	128	Unique ID of the *QA*Director Requirement Folder. Do not modify the value returned from *QA*Director.	

Name	Max Characters	Description	Prior Name
`QADirector Requirement Folder Name`	`2000`	Name of the *QA*Director Requirement Folder.	
`QADirector RMTool Requirement Name`	`2000`	* This attribute is not required. However, you should use this attribute to ensure accurate requirement names when duplicate requirement names are used in the requirements management tool. Since *QA*Director does not support duplicate requirement names, this attribute prevents *QA*Director from incrementing the requirement name during each update.	

NOTE

The following *QA*Director fields are obsolete and can be deleted: `QACenter Elapsed Time`, `QACenter End Time`, `QACenter Expected Result`, `QACenter Job ID`, `QACenter Job Machine`, `QACenter Job Owner`, `QACenter Library ID`, `QACenter Risk Level`, `QACenter Start Time`, `QACenter Failure Description`, `QACenter Job Folder`, and `QACenter Job Name`.

Ensure that each one of the required attributes created conforms to the following standards:

- Attributes must be created to accommodate the maximum number of characters specified above.
- Attributes must not be given a default value.
- Attributes must use the default value as its initial value and not inherit any value from its parent.
- Attributes must be given the appropriate permission access to allow any user who is running the integration access to change the value of these attributes.
- Attributes must not be modified by users. These attributes are used by the integration add-In and are critical.

*QA*Director Risk Model Custom Attributes

The following table describes the optional *QA*Director custom attributes to create in your requirements management tool when you want to view *QA*Director Risk values for assets.

These attributes are not necessary to create/update the integration. Adding these attributes will allow populating risk values into *QA*Director assets. The proper attributes must be present for the approriate *QA*Director Project Risk Model type for the values to correctly populate. If the values are out of the allowable range, no value is pushed. The value is only pushed the first time the asset is created in *QA*Director.

To view these fields in *QA*Director and to set the Risk Model for a project:

1. Open your project in *QA*Director.

2. Click the **Properties** button.
3. Click the **Risk Model** tab.
4. Select a risk model from the **Risk Model** list: `Manual`, `Quality Point`, or `Standard`.
5. For each item in the **Risk Model Custom Attributes** list, enter the maximum risk value.
6. Depending on which **Risk Model** you chose, be sure to create the appropriate attributes in the requirements management tool described in the table below.
7. Refer to the *QA*Director online help for more information on using Risk Models with projects.

Table 2. *QA*Director Risk Model Custom Attributes

Name	Max Characters	Risk Model
`QADirector Complexity of Function`	128	Quality Point
`QADirector Custom Factor 1`	128	Quality Point
`QADirector Custom Factor 2`	128	Quality Point
`QADirector Custom Factor 3`	128	Quality Point
`QADirector Defect Impact`	128	Quality Point
`QADirector External Testing Effort`	128	Quality Point
`QADirector Maturity of Function`	128	Quality Point
`QADirector Prior External Testing`	128	Quality Point
`QADirector Prior Internal Testing`	128	Quality Point
`QADirector Usage Frequency`	128	Quality Point
`QADirector Impact To Release`	128	Standard, Quality Point
`QADirector Manual Risk Weight`	128	Manual Only

CHAPTER 9

Installing the QADirector Manual Test Import Utility

The **QADirector Manual Test Import Utility** is an application that allows you to import Microsoft Office Word documents and Microsoft Office Excel spreadsheets into *QA*Director as manual scripts.

1. From the Quality Management installation media, click the ***QA*Director** tab.
2. Click the **Install *QA*Director Manual Test Import Utility** link to launch the installation.
3. On the ***QA*Director Manual Test Import Utility - InstallShield Wizard** screen, click **Next**.
4. Read and accept the license agreement and click **Yes**.
5. On the **Customer Information** screen, enter your **User Name** and **Company Name** and click **Next**.
6. On the **Choose Destination Location** screen, use **Browse** to select a new installation directory or use the default. Click **Next**.
7. Select a folder on the **Select Program Folder** screen and click **Next**.
8. Click **Next** on the **Start Copying Files** screen.
9. The **Setup Status** screen appears and displays the progress of the installation. After it is complete, click **Finish** to finish the installation.

Click **Start>All Programs>Micro Focus>QADirector>Manual Test Import Utility** to launch the application.

CHAPTER 10

Maintaining the Installation

Accessing Maintenance Mode

There are two methods for accessing maintenance mode: from the original installation media or from the **Windows Control Panel.**

From the Installation Media Browser

Click **Install product name Products**, where product name is the name of the product suite that you want to maintain.

From the Windows Control Panel

Open the **Windows Control Panel** and choose **Add/Remove Programs**. The **Add/Remove Programs** dialog box appears. Select the product and click **Change/Remove**.

Following either of these methods, the **InstallShield Wizard** appears, and three maintenance mode options are available: modify, repair, and remove. For more information about these options, see the appropriate section in this chapter.

Modifying the Installation

For products with optional components, you can add or remove components. Rather than uninstall and re-install the product, you can modify your installation. To add or remove optional components:

1. Access the **InstallShield Wizard**. For more information, see Accessing Maintenance Mode [p. 47].
2. Select **Modify** and click **Next**. The **Select Components** screen appears allowing you to add or remove components. Select the check box next to each component to add and clear the check box next to each component to remove. Click **Next**. Setup adds or removes the appropriate components.

3. If you are prompted to restart your computer, you can restart it now (recommended) or to restart it later. You must restart the computer before accessing the program again. Click **Finish** to complete the maintenance.

Repairing the Installation

There may be times when you will need to repair a damaged product installation. This could be due to an inadvertent deletion or corruption of the program. To repair your product:

1. Access the InstallShield Wizard. For more information, see Accessing Maintenance Mode [p. 47].
2. Select **Repair** and click **Next**. Setup repairs the specified product. If you are prompted to restart your computer, you can restart it now (recommended) or to restart it later. You must restart the computer before accessing the program again.
3. Click **Finish** to complete the maintenance.

Removing the Web Server

You have the option of removing the *QA*Director Web Server. To remove the installation:

1. Access the **InstallShield Wizard**. For more information, see Accessing Maintenance Mode [p. 47].
2. Select **Remove** and click **Next**. The selected files are removed from the web server.

   NOTE

   Removing the **Client** or the **Test Execution Agent** affects only the selected computer. Removing other components of *QA*Director affects the entire installation and all users.

3. If you are prompted to restart your computer, you can restart it now (recommended) or to restart it later. Click **Finish** to complete the maintenance.

Removing Test Execution Agents

The **Test Execution Agent** can be removed using the Add/Remove Programs option in the **Windows Control Panel**. **Test Execution Agents** are installed separately on each machine, and need to be uninstalled on each machine as well.

Removing the Clients

To remove the client from a machine, delete the following directory:

```
C:\Documents and Settings\<local user>\Local Settings\Apps\2.0
```

NOTE

Removing this directory deletes all smart client applications currently on the machine. This directory needs to be deleted from each client machine.

APPENDIX A

Additional Installation and Configuration

Configuring *QA*Director with Citrix

*QA*Director will run in a Citrix environment using the configuration specified below. Refer to the *QADirector Release Notes* for supported versions.

1. Login to the Citrix server that will host the *QA*Director application.
2. From the Citrix server machine, login to the *QA*Director webserver and run the *QA*Director client application. This will download all requisite files to the Citrix server.
3. Use **Start>Search** to locate the `QADirector.exe` file in the `Documents and Settings\<current user>` directory. For example: `c:\Documents and Settings\Administrator`.

   NOTE

   Be sure to check the **Search hidden files and folders** option.

4. Copy all of the contents of the directory containing the `qadirector.exe` file.
5. Create a new directory on the Citrix web server in `Program Files` called `QADirector`. Paste all of the files copied in the previous step into the new directory.
6. In the new directory, locate the `TMApp.config` file. Open this file with an XML or text file editor.
7. Find the following string in the file:

   ```
   <add key="NonNetworkDeployedURL" value="http://localhost/qadirector/"/>
   ```

8. Replace "`localhost`" in the value "`http://localhost/qadirector/`" with the name of the *QA*Director web server.
9. Save and close the file.
10. Create and publish a Citrix application that will point to the `qadirector.exe` file.

Installing QADirector on a Foreign OS

Additional permissions are needed to install *QA*Director on an operating system using a language other than English. The user performing the installation needs full access to the following directories on the web server:

```
<Installation Directory>\Logs
<Installation Directory>\TMServices\Temp
```

Configuring Microsoft Windows 2003 for *QA*Director

Microsoft Windows 2003 requires additional steps in order to use the Internet Information Service (IIS) Web server with *QA*Director. To configure IIS on the Microsoft Windows 2003 server:

1. Open the **Internet Information Service Manager**. For more information, refer to the Microsoft Windows documentation.
2. Select the **Web Service Extensions** option.
3. Select **Allow** from the **All Unknown ISAPI extensions** list.
4. If **Internet Data Connector** exists, select **Allow**.
5. If the **ASP.NET v2.0** option exists, select **Allow.**
6. If **ASP.NET v2.0** option does not exist:
   a) Open the Microsoft Windows **Add/Remove Programs** utility. Click **Add/Remove Windows Components**. The **Windows Component Wizard** opens.
   b) Select `Application Servers` from the **Components** list and click **Details**. Select `ASP.NET` from the **Subcomponents** list and click **OK**. Click **Next**.
   c) Open **Internet Information Service Manager**. Select **Web Service Extensions** option. Select **Allow for ASP.NET v2.0** option.
7. Click **OK.**

Installing the *QA*Director Application Server on Windows 2008, Windows 7

If you are only installing the *QA*Director Application Server with no other features selected, a message box displays the IIS features to enable for *QA*Director to function properly. The message box displays the necessary features similar to the way the features are listed in the **Windows Features** dialog box, accessed from the **Windows Control Panel**.

NOTE

Refer to the Microsoft Windows help documentation for information on enabling Windows Features.

The Windows Features to enable appear in the message box as follows:

```
World Wide Web Services
     Application Development Features:
          - Asp
          - ASP.NET
          - ISAPI Filter
```

```
          - ISAPI Extensions
          - Server Side Includes
```

Cancel the installation, close the installation media window, and open the **Windows Control Panel** to enable these Microsoft Windows Features, as explained in the Microsoft Windows help documentation.

File-AID/CS Integration Components on Windows 2008, Windows 7

A message box displays the IIS features to enable. The message box displays the necessary features similar to the way that the features are listed in the **Windows Features** dialog box, accessed from the **Windows Control Panel**.

NOTE

See Microsoft Windows help documentation for information on enabling Windows Features.

The **Windows Features** to enable appear in the message box as follows:

```
Web Management Tools:
     -IIS 6 Management Compatibility

World Wide Web Services
     Application Development Features:
          - Asp
          - ASP.NET
          - ISAPI Filter
          - ISAPI Extensions
          - Server Side Includes

Common HTTP Features
     - Directory Browsing
     - HTTP Errors
     - Static Content
```

Cancel the installation, close the installation media window, and open the **Windows Control Panel** to enable these Microsoft Windows Features, as explained in the Microsoft Windows help documentation.

Glossary

Actual Quality Index (AQI)

The AQI is a calculated value that indicates the overall quality of a project. The AQI indicates the current relative quality at the current stage of the project. As a project progress in time, this value should continue to rise, unless there are offsetting factors, such as defects.

Asset

Asset is a generalized term for all *QA*Director objects. Examples include: requirement, test, and script.

Associated Files

Some tests require additional files in order to execute properly. Associated files are files that are added to a test by a user that relate to the test. During execution, associated files are copied to the machine running the test.

Automated Testing

Automated Testing is defined as using computer programs to execute tests and to compare results. *QA*Director facilitates automated testing by managing, executing, and reporting on your automated tests.

Clients

Clients are a collection of *QA*Director assets that add a layer of organization and security to the testing process. Clients contain projects, global custom attributes, global scripts, tools, and tool domains. These assets cannot be shared among clients. Users, however, are application-level (above clients) and are assigned to clients.

Client Application

The *QA*Director client is a Smart Client application that is downloaded from the *QA*Director web server to a client machine for execution. The *QA*Director client can also connect to the *QA*Director **Manual Testing** application.

CUA

CUA is used to manage users from a central location and perform administrative tasks from a single point when you register supported products with the CUA.

Custom Attributes

Custom Attributes are user-defined fields that store information about *QA*Director assets. During execution, Custom Attributes are saved as environment variables for usage in automated testing.

All Custom Attributes are global. When you create a Custom Attribute in a project, it is first added to the global list, and then associated with the project. Any changes made to a custom attribute are reflected in all projects that use the Custom Attribute.

Custom attributes can also be calculated from system fields or other custom attributes. Custom Attributes can be assigned to individual assets or assigned to assets in relation to other assets. Custom attributes, like all assets in *QA*Director, must have unique names.

Cycle

Cycles are used to group Tests for both planning and execution purposes. They are used as an aid for selecting Tests to create Jobs. Cycles are created at the project level and set at the Test level. When you create your Tests, you specify one or more `Planning Cycles` that the Test will run in.

When you create Execution Plans/Jobs, you specifiy a single `Execution Cycle` that they run in. After Job execution, you can go to the **Results Center** and change which `Execution Cycle` that the Job ran in. You can also filter on the `Execution Cycle` field in a report.

Dashboard

The Dashboard is a snapshot of a project's current state. It includes statistical data about Test distribution and coverage as well as defect status. Use the **Dashboard** tab in the **Project Properties** dialog box to set the filtering criteria used by the Dashboard.

Database Server

The *QA*Director database server contains all the essential *QA*Director information and assets.

Exchange File

An Exchange File is the type of the file created during a *QA*Director project or asset export. An Exchange File has a `.qad` extension.

Execution

Execution is the process of running either an automated or manual test.

Execution Groups

Execution Groups are logical groupings of Tests that are organized to run in an **Execution Plan**. Execution Groups also contain execution properties that may affect the outcome of an execution.

Execution Groups (Public)

A Public Execution Group is an Execution Group that is saved as Public. A Public Execution Group only contains the original Execution Group properties, not the associated assets.

Execution Plan

An Execution Plan is an organized structure of Execution Groups and Tests that are executed as a Job. Execution plans allow you to organize tests and their requirements into groups for execution.

Filter

A filter provides a way to reduce the amount of assets being displayed by only showing the ones that match the predefined criteria. Filters are available in the **Requirements Center** and the **Execution Center**.

A filter offers the same functionality as a search folder, which are available in the other centers.

Folder

*QA*Director Folders are containers for *QA*Director Assets. The following centers offer Folders for organization: **Requirements Center**, **Tests Center**, **Scripts Center**, and **Results Center**. You can also create and configure Search Folders to view specific assets.

Global Custom Attributes

Global Custom Attributes are the entire list of Custom Attributes for a given Client.

For more information, see Custom Attributes [p. 53].

Job

A Job is an Execution Plan that is scheduled to run.

For more information, see Execution Plan [p. 54].

Manual Script

A Manual Script is a Script made up of Steps designed for a user to manually process. *QA*Director has the **Manual Script Editor** to create Manual Scripts.

Manual Test Import Utility

The **QADirector Manual Test Import Utility** is an application that allows you to import Microsoft Office Word documents and Microsoft Office Excel spreadsheets into *QA*Director as manual scripts.

Manual Testing

Manual Testing is the process of a software tester manually going through an application according to the instructions of one or more Tests, Scripts, or Steps.

Planned Quality Index (PQI)

The PQI is a calculated value that indicates the overall quality of a project. The PQI indicates the relative quality (in terms of passed and failed tests, and open defects) at the end of the project.

Projects

Projects are contained within Clients and contain Requirements, Tests, Scripts, Defects, product integration information, user information, and testing Results.

Quality Optimizer

The **Quality Optimizer** is an optional planning tool that allows you to view risk and coverage statistics associated with adding or removing Tests. It also allows you to plan tests, execute what-if scenarios, visualize risk and time distribution, and anticipate test status.

QualityPoint (QP)

QualityPoint is a software testing methodology that defines the necessary steps for an organization to meet its quality testing goals. It is used to create a customized quality assurance testing process that works with each organization's unique requirements. QualityPoint is the methodology that drives the Quality Management Solution. Quality Management combines the QualityPoint testing methodology and products into a total application quality solution for the customer.

Requirement

A Requirement is a defined need for a software application. *QA*Director contains a **Requirements Center** that captures all Requirements for a product. These Requirements are stored in Requirement Folders.

*QA*Director also integrates with several requirements management tools, including Micro Focus Optimal Trace, for pulling in requirements and pushing back Test Results.

Result

A Result is the status of a Test/Script executed within a Job. Script results determine the status of a Test. Test Results can then propogate back to a Requirement.

Results Propogation

Results Propogation is the concept of linking Job Results back to Requirements. You set Result Propogation via a Test in an Execution Plan.

Risk

Risk is a specialized field in *QA*Director used to prioritize assets for testing. Setting a Risk on an asset allows a tester to define high or low priority test cases. Risk fields are defined within a Risk Model at the Project level.

Risk Model

Risk models provide a guideline and apply a set of standard custom attributes to use in calculating Risks for requirements and tests.

Role

A Role is a type of user tied to a permission set. Roles are predefined and cannot be created.

Rule

A Rule is a command that performs a specific action during execution. Rules are used with Execution Groups, Tests, and Jobs.

Scheduler

The **Scheduler** is a *QA*Director component that runs on the web server used to process reporting metrics. Use the **Administration - Project Schedules** dialog box to adjust scheduled statistical calculations.

Script

A Script is a *QA*Director asset contained within a test that is designed to execute during a Job. Scripts can be manual or automated and can have the following statuses: `Pass`, `Fail`, `Not Executed`. Use the **Scripts Center** or **Manage Global Scripts** dialog box to manage your Scripts.

Search Folder

A search folder provides a way to reduce the amount of assets being displayed by only showing the ones that match the predefined criteria. They are available in the **Tests Center**, **Scripts Center**, **Results Center**, and **Defects Center**.

Search Folders offer the same functionality as filters, which are available in the **Requirements Center** and **Execution Center**.

For more information, see Filter [p. 54].

Single Sign On

Single Sign On prodives *QA*Director users with the option of being able to automatically log in to a product that is integrated with *QA*Director via a tool domain. Access these options in the **User Properties** dialog box.

SSL Enabled

Connects the *QA*Director client to the *QA*Director server via secure socket layers. SSL provides security for `TCP/IP` networks. Use the *QA*Director **Application Configuration** dialog box to modify this setting.

Step

A Step is unit of action to perform within a Script. Use the *QA*Director **Manual Script Editor** to define Steps for a Script.

Stored Procedure

Stored Procedures are used to perform custom calculations for Custom Attibutes and Risk Models.

Test

A Test is a group of Scripts designed to satisfy a requirement. Tests are contained within Requirements (but not required to be) and contain Scripts. Use the *QA*Director **Tests Center** to manage Tests.

Test Execution Agent (TEA)

The **Test Execution Agent** is an automated testing application that receives the test execution requests from the **Test Management Server** and then runs the tests and submits the results back to *QA*Director. Specifically, it stores information about who is permitted to execute jobs on a computer and whether the execution is remote or local.

In a typical team environment, install and start a **Test Execution Agent** on each machine where jobs will run.

Test Management Server (TMS)

The **Test Management Server** reads job submissions from the database, manages jobs, tracks the machines available for test execution, and reports the status of jobs in progress. In order to perform automated testing, a **Test Management Server** and **Test Execution Agent** must be running.

This application runs as a service and can reside on the same machine as the web server, or on separate machines.

Tool

A tool defines parameters required to connect to an external product. Each tool can have multiple tool domains.

Tool Domain

A tool domain defines values for each parameter in a tool.

User

Users are created globally and assigned to Clients and then assigned to Projects. Each User has a Role and that Role can be modified on a project basis.

Web Server

The *QA*Director web server hosts the central *QA*Director web application which is then accessed by the *QA*Director smart client.

Index

O

Q

R

S

T

W