Perception Server Installation Guide

Find out how to install and configure Questionmark™ Perception™

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Revision # 2.1
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Welcome

Perception Version 5 is a new step forward in the delivery of reliable, intricate assessments. Perception Server allows assessments to be delivered on-line, off-line, via Learning Management Systems and through Test Centers. This guide provides information about how to install Perception Server in your environment.

What's new?

For information about what is new in Perception Version 5, please refer to the following Knowledge Base article for details:

What's new in Perception Version 5.1?

What's new in Perception Version 5.2?

How is this guide organized?

This guide is organized into several major sections, including system requirements, operating system configuration and installation.

The guide can help you to:

- Identify the system requirements
- Install Perception Server
- License your copy of Perception Server
- Upgrade Perception Server from a previous version
- Configure advanced Perception Server settings
- Uninstall Perception Server

Audience

This guide provides you with the information necessary to install Perception Version 5 in your organizations IT environment. It is designed for IT specialists and application administrators and expects that the people carrying out the tasks described in this guide are familiar with the concepts of installation and configuration of server software applications.
Introduction

The system requirements for Perception Server depend on how you want to implement the software. Perception Server’s multi-tiered technology provides for improved scalability and customization to suit organizational needs. This chapter provides information about:

- The different types of installations available for Perception
- The system requirements to install Perception successfully
Types of installations

There are a number of different installation types for Perception Server. The type of installation chosen will depend on the needs of your organization. The installation types are highlighted below.

Single server

A single server installation has all the components installed on the same server, with or without the database server. All functionality for Perception is accessed through the single server. The diagram below shows a single server installation connecting to a database on another server.

Multi-tiered

Multi-tiered installations allow the different tiers within Perception to be installed on different servers to increase the throughput of the application. For example, the software responsible for displaying questions and assessments to a participant can be installed on one computer, Enterprise Manager and the rest of Perception including the Questionmark Assessments Business Service on another. Finally the database holding the repository on a third. By spreading out the software to use 3 computers you can improve the reliability and speed of the application by dedicating computers to each of the most important functions.

The multi-tiered architecture of Perception Version 5 is composed of the following tiers:

1. Database Tier - hosts the shared repository and stores questions, assessment and result data
2. Business Logic Tier - sends assessment data from the database server to the presentation tier. This is known as the Questionmark Assessment Business Service (QABS) it includes the Enterprise Manager and Shared Repository Manager applications
3. Presentation Tier - presents assessments to participants in a suitable format. This is known as the Questionmark Presentation Layer for Assessments (QPLA) and is what the participant connects to when they take an assessment

These 3 tiers combine to form Questionmark Perception.
Typically, most organizations split the tiers across various servers, as shown below.

**Load balanced**

Load balanced installations are usually a combination of multi-tiered or single server installations that work in tandem to provide better responsiveness under high loads or a redundancy if any server fails. Load balanced systems consist of a number of servers setup in the same manner that spread the work load. Incoming requests are sent to any machine in the load balanced cluster. This means that all the servers must be exact duplicates or be able to gather and record information to the same source. The diagram below highlights a simple load balanced system in operations.
For further information about the best practice for setting up Perception in a Load Balanced environment, please refer to the following:

- **How do I setup Perception Version 5 for Load Balancing?**
System Requirements

Before you install Perception Server, you should ensure that your system meets the minimum requirements. These are listed in the following sections:

- **Disk space needed**
- **Supported operating systems**
- **Supported databases**
- **Supported browsers**
- **Software requirements**
- **License files**
- **Virtual Environments**

Note that you will need administrative permissions for the machine on which you will be installing Perception Server. If you want to deliver large volumes of assessments (where large volumes typically mean 500 or more assessments run per day or 50 or more assessments started at exactly the same time), you may have different system requirements to those listed here. If this is the case, we suggest you refer to the following document:


This guide provides best practices on how to set up and run systems with large volumes, and advice on what sort of hardware and software you need to consider if you are envisaging a large volume of assessments in the future. It is available from the Perception Product Support site.

**Disk space needed**

Depending on the type of installation you intend to carry out, the server on which you want to install Perception must have the required free disk space as highlighted in the table.

<table>
<thead>
<tr>
<th>Install type</th>
<th>Free disk space required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Questionmark Prerequisites/PHP</td>
<td>20 MB</td>
</tr>
<tr>
<td>Single server install</td>
<td>500 MB</td>
</tr>
<tr>
<td>Multi-tiered installation</td>
<td>Space available on server hosting QPLA - Windows: 100 MB Linux: 50 MB</td>
</tr>
<tr>
<td></td>
<td>Space available on server hosting Perception Server - 450 MB</td>
</tr>
</tbody>
</table>

Additional space will be required to store logs and resources that are created or required for the system.

**Supported operating systems**

The following section provides details about what operating systems can be used to install the various parts of Perception Version 5.
Windows requirements

<table>
<thead>
<tr>
<th>Perception is compatible with the following 32-bit operating systems:</th>
<th>Perception is compatible with the following 64-bit operating systems:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Windows XP</td>
<td>• Windows Server 2003</td>
</tr>
<tr>
<td>• Windows Vista</td>
<td>• Windows Server 2008</td>
</tr>
<tr>
<td>• Windows 7 *</td>
<td>• Windows Server 2008 R2 *</td>
</tr>
<tr>
<td>• Windows Server 2003 (with Service Pack 2)</td>
<td>For further details, please refer to the Installing Perception on a 64-bit Operating System section in the Advanced configuration options chapter.</td>
</tr>
<tr>
<td>• Windows Server 2008</td>
<td></td>
</tr>
</tbody>
</table>

* Perception Version 5.2 only

Questionmark recommends that you use Windows Server 2003 or Windows Server 2008 for production use. You should use Windows XP, Vista or 7 for low demand low stakes assessments only.

If you want to create assessments that use non-English characters, you will need to install the correct code page conversion tables. This is to ensure that non-English characters can be displayed by Perception and the database server used. For further information about code page conversion tables, please refer to Configuring code page conversion tables in the chapter Configuring your server.

Linux requirements

The following are the minimum system requirements if you are installing QPLA on a Linux operating system.

<table>
<thead>
<tr>
<th>Minimum system requirements:</th>
<th>Supported Linux distributions are:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• 512 MB RAM</td>
<td>• Ubuntu Server 8 or 9</td>
</tr>
<tr>
<td>• 16 MB Hard Drive Space</td>
<td>• RedHat Enterprise Linux 5</td>
</tr>
<tr>
<td>• Network/Internet access to the Perception Server</td>
<td>• SUSE Linux Enterprise 11</td>
</tr>
</tbody>
</table>

QPLA can be installed on other Linux distributions. However, only the distributions listed above will be supported by Questionmark Technical Services.

<table>
<thead>
<tr>
<th>Additional components required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apache</td>
<td>Apache is the Web Server application that runs on a Unix/Linux environment and is available as Apache 1.x and 2.x. It is recommended that you use Apache 2.0 with QPLA.</td>
</tr>
<tr>
<td>PHP</td>
<td>PHP is a scripting language that is used to create dynamic web pages. Perception Version 5 requires PHP 5.2.5 or later to be installed. You must also ensure you have installed the following extensions for PHP:</td>
</tr>
<tr>
<td></td>
<td>• XSL</td>
</tr>
<tr>
<td></td>
<td>• CURL</td>
</tr>
<tr>
<td></td>
<td>• SOAP</td>
</tr>
<tr>
<td></td>
<td>• OpenSSL (if you intend to use SSL)</td>
</tr>
</tbody>
</table>
### Additional components required

<table>
<thead>
<tr>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Samba client</td>
</tr>
</tbody>
</table>

There are many Linux distributions most are grouped in to two types "Server" and "Desktop". While Perception can be installed on Desktop distributions such as Fedora this is only recommended for tryout purposes. For a production installation of QPLA it is recommended that you use a Server edition distribution, preferably one of the ones recommended above.

**For further information, please refer to the [Linux](#) section of this guide.**

### Supported databases

The following databases and versions can be used with Perception Server.

<table>
<thead>
<tr>
<th>Database</th>
<th>Versions</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>SQL Server</td>
<td>2005 and 2008 (32-bit or 64-bit versions)</td>
<td></td>
</tr>
</tbody>
</table>

In SQL Server there are two database collations to set, the **SQL Server collation** and the **Database collation**.

For English and non-English characters to appear correctly when using SQL Server, your collations should be set as:

- **SQL Server collation.** This must be configured to use the collation `SQL_Latin1_General_Cp1_CI_AS`, this collation utilizes the code page **1252 (ANSI - Latin 1)**. The collation `SQL_Latin1_General_Cp1_CI_AS` is the case insensitive version. You should take care not to use the case sensitive version of the collation. The case sensitive version can be identified with the initials **CS** appearing in the collation title while the case insensitive version can be identified by the initials **CI**.

  This must be applied to the instance of SQL Server when installing SQL Server. Please be aware that when installing SQL Server 2005/2008 it will automatically attempt to get the most appropriate collation depending on what the server locale has been set as. In most cases this will need to be manually changed to use the `SQL_Latin1_General_Cp1_CI_AS`.

- **Database collation.** This must be set as `SQL_Latin1_General_Cp1_CI_AS` to ensure that all data written in Perception is stored and displayed correctly. See the section [Database setup](#) for instructions how to do this when installing Perception.

Please note that the collation used should be `SQL_Latin1_General_Cp1_CI_AS` not `Latin1_General_CI_AS`.

Users wishing to set up an English language version of Perception on
<table>
<thead>
<tr>
<th>Database</th>
<th>Versions</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>a Non-English operating system and database should ensure that the correct language packs are installed for both the database and the operating system. Additionally, the language pack 1252 (ANSI - Latin 1) must be installed for both servers and the SQL Server collation and database collation set to SQL_Latin1_General_Cp1_CI_AS. The question searching facility in Authoring Manager requires the Full Text indexing component of SQL Server to be installed and configured and will not work without it. Once Full Text indexing is installed, it will need to be enabled for the database before the repository is created.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Oracle        | 9i Release 2, 10g and 11g (Windows/Linux 32-bit or 64-bit versions) | There are a number of factors that need to be taken in to account if using Oracle as your database server for Perception. These include:  
- For non-English characters (Latin characters and other Western European characters) to appear properly when using Oracle, your Oracle installation must be configured to utilize the AL32UTF8 character set.  
- For 2-bit characters (such as Japanese, or Chinese) you must utilize the WE8MSSWIN1252 database character set  
- If using the WE8MSSWIN125 database character set on a non-English operating system the National Character Set (NLS) must be set to English (either US or UK)  
No other character sets can be reliably supported at this time. You can either change your database to use the appropriate character set (providing that other applications using Oracle can work with this), or else set up a separate Oracle installation with the appropriate character set for Perception to use.  
To use the Scoring Tool component of Perception Server with Oracle, ODP.NET (Oracle Data Provider) version 9.2 or higher must be installed on each application server you will be running Perception Server on. ODP.NET can be obtained from the Oracle Web site: www.oracle.com  
The question searching facility in Authoring Manager requires Oracle Text to be installed and configured and will not work without it. Oracle Text is not installed by default in some versions, and may need to be installed. |
| SQL Server Express | Microsoft SQL Server 2005/2008 Express Edition | SQL Server 2005/2008 Express is a free desktop database that is limited in functionality when compared to SQL Server 2005/2008. For |
If you will be using Perception Server for production use, Perception Server should be installed on an application server (or multiple) and the Perception database (referred to as a repository) should be installed on a separate database server.

**Supported browsers**

For further information about the supported web browsers for Enterprise Manager, please refer to the following Knowledge Base articles.

- What browsers does Perception Version 5 support?


**Software requirements**

The applications required by Perception Server are listed in the following table.

Depending on the operating system you are using and the type of installation you have, these applications may already be installed. Before you install Perception Server, however, you should ensure that they are all present.

<table>
<thead>
<tr>
<th>Application</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHP</td>
<td>The version of PHP required is PHP 5.2.5 or higher. Using a previous version of PHP is not recommended and is unlikely to work as expected. PHP is required to allow the Presentation tier to function. The Presentation tier is the part of the application that renders questions and assessments in a usable form through a participant's web browser. PHP will need to be installed:</td>
</tr>
<tr>
<td></td>
<td>• On the same server as Enterprise Manager if you are using a single server.</td>
</tr>
<tr>
<td></td>
<td>• On the server dedicated to the Presentation tier in a multi-tiered setup.</td>
</tr>
<tr>
<td></td>
<td>In addition, the PHP installation also requires the following extensions to ensure Perception will work properly:</td>
</tr>
<tr>
<td></td>
<td>• <strong>CURL</strong></td>
</tr>
<tr>
<td></td>
<td>• <strong>SOAP</strong></td>
</tr>
<tr>
<td></td>
<td>• <strong>XSL</strong></td>
</tr>
<tr>
<td></td>
<td>• <strong>OpenSSL</strong> (if planning to run Perception using SSL via HTTPS)</td>
</tr>
<tr>
<td>Application</td>
<td>Notes</td>
</tr>
<tr>
<td>-------------</td>
<td>-------</td>
</tr>
</tbody>
</table>
| Questionmark have created a prerequisites installation package that contains the required PHP and extension files. for Windows | To find out more about installing PHP, please refer to:  

*Installing the PHP prerequisites* |
| SMTP | Perception can be configured to send emails to participants at the end of assessments, or with Email Broadcast. If you do not want to configure Perception to send emails, however, this is not required.  

It is possible to configure Perception to send emails using a local SMTP service in IIS or connect to an external SMTP service (For example, one that is provided by your Internet Service Provider.).  

In Windows Server 2003, Windows Server 2008, Windows Vista and Windows XP, SMTP is part of IIS (Internet Information Services) but needs to be installed. To find out more about installing and configuring SMTP, please refer to the section:  

*Configuring your server*  

However, the SMTP service doesn't have to be supplied by Microsoft. Please refer to *Configuring E-Mail services* for further details on how to specify the address and port settings that Perception will use. |
| .NET | Perception Version 5 requires the .NET 2.0 Framework to be installed on the application server. Provided you have .NET 2.0 Framework installed, you can also have .NET Framework version 1.1 and the .NET 3.0/3.5 Framework installed on the same server.  

If you are using Windows Server 2003 R2 or Windows Server 2008 the .NET 2.0 Framework is installed by default. However, If you run the installer without first installing the .NET 2.0 Framework on Windows XP or Windows Server 2003 a choice will be offered to the user to download and install the .NET 2.0 Framework components. This download facility requires an Internet connection.  

You can check what versions of the .NET Framework are installed by checking in the following folder on your server:  

*C:\Windows\Microsoft.NET\Framework*  

Each installed version of the .NET Framework will have a corresponding folder. |
| IIS | IIS is not installed by default. To find out if you have IIS installed, click *Start*, click *Control Panel*, and then double-click *Administrative Tools*. Click *Internet Information Services (IIS) Manager*. If you cannot see IIS Manager listed, then you do not have it installed.  

For further information about how to install IIS, please refer to the following section for your specific operating system:  

*Configuring your server* |
License files

When you install Perception Server, a license is included that allows you to use the product for 14 days. After this evaluation period expires, you will need to obtain a valid license. Please refer to Licensing Perception for more information once you have installed Perception Server.

Virtual environments

Perception can be installed and run in virtual environments. Questionmark supports installations of Perception in the following virtual environment platforms:

- **VMWare**
  VMWare is a virtualization solution produced by VMWare Inc. and is the market leader in virtualization. VMware software provides a completely virtualized set of hardware to the guest operating system.

- **Hyper-V**
  Hyper-V is a hypervisor based virtualization system for x64 bit systems. It is a new virtualization technology that Microsoft implemented in Windows Server 2008 and directly replaces Microsoft Virtual Server. Hyper-V is built in to the host and guest operating systems and allows for improved performance over Microsoft's traditional virtualization methods.

If using virtual environments care should be taken to ensure that the host computer running the virtualization software is robust and powerful to ensure that Perception is not left without the ability to create and store data or process actions. The virtual environments need to be setup to work as hardware based machines and should be setup with adequate amounts of memory, hard drive space and processor speed. The network configuration for the virtual environment will depend on your organization network setup, but Perception has been tested extensively using a bridged network connection from the virtual environment to the physical network.

Questionmark Perception is multi-threaded, but it is not specifically vSMP aware. It will use whatever resources the guest operating system makes available to it. While it can be run on guest operating systems that utilize a single vCPU or multiple vCPUs, it is unable to communicate directly with the host operating system in a virtualized environment to optimize resources via vSMP.

The workload of delivering assessments from Perception is handled by IIS. IIS assigns a response to a thread and thus the processor use is determined by IIS and not by Perception.

General virtualization tips include:

- Don't mix single vCPU and multiple vCPU guests on a single host.
- Prevent the straddling of CPUs (for example, a server with 2x 6-core CPUs cannot run 3x 4-vCPU guests efficiently as one would straddle two CPUs)
- Ensure host capacity is capable of supporting all guest operating systems under load. If the host constantly runs at close to 100% consider separating some of the guest systems to other hosts.
Installing Questionmark Perception

If you intend to upgrade an existing version of Perception to Perception Version 5, please refer to the instructions in the following chapter:

- **Upgrading Perception Server**

When it comes to installing Questionmark Perception if you have taken into account the system requirements and you have decided the type of installation that best satisfies your needs you can install Perception by completing the following steps:

<table>
<thead>
<tr>
<th>Step</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Configuring your server to run Perception</td>
</tr>
<tr>
<td>2</td>
<td>Setting up a database for Perception to use</td>
</tr>
<tr>
<td>3</td>
<td>Installing PHP</td>
</tr>
</tbody>
</table>
| 4    | The route you use to install Perception will depend on the type of installation you require. This guide provides details about how to install Perception:  
  - On a single server  
  - In a multi-tiered Windows environment  
  - In a multi-tiered Unix/Linux and Windows environment |
| 5    | Creating a repository |
| 6    | Verifying your installation of Perception |
| 7    | Securing communications |
In addition to completing the above steps to install Perception you may also be interested in some of the advanced options that are available in the Advanced configuration options chapter.

For a list of known issues with Perception Version 5, please refer to the following Knowledge Base article for the relevant version you are installing:

What are the known issues with Perception Version 5.1?

What are the known issues with Perception Version 5.2?
Configuring your server

This section covers how to configure your operating system prior to installing Questionmark Perception. The following operating systems are covered:

- Windows XP and Vista/7
- Windows Server 2003
- Windows Server 2008
- Windows Server 2008 R2
- Linux

In addition to configuring your operating system you will also need to install PHP. For further information, complete the above steps for your chosen operating system, following by:

- Installing PHP
Configuring Windows XP, Vista or 7

Windows XP, Vista and 7 are not designed to run as full server platforms. Using Perception with these operating systems is only recommended for low demand low stakes assessments only. The following section provides details about:

- How to ensure Internet Information Services (IIS) is installed and configured
- Configuring the operating system language options

Ensuring IIS is installed and correctly configured

Before installing Perception Server on Microsoft Windows XP, Vista or 7 operating system, you should ensure that components of Internet Information Services (IIS) required by Perception Server are correctly installed.

Refer to the relevant section below for details about how to install IIS:

- Windows XP
- Windows Vista/7

Installing IIS on Windows XP

This section highlights how to install IIS 5.1 using the Add or Remove Programs from the Control Panel. For more detailed instructions please refer to the documentation that accompanied your operating system.

To check if you have IIS installed check if Internet Information Services is available in Administrative Tools from the Control Panel. If it is not available complete the steps below to install it.

To install IIS using Add or Remove Programs:

1. From the Start menu, click Control Panel
2. Double-click Add or Remove Programs
3. Click Add/Remove Windows Components
4. In the Windows Components Wizard list box, click Internet Information Services Manager
5. Click Details
6. Ensure a check is placed in the following check-boxes:
   - Common Files
   - Internet Information Services Snap-In
   - SMTP Service - If you want Perception to be able to send emails from this computer
   - World Wide Web Service
7. Click OK
8. Click Next and wait for the Windows Component Wizard to install the necessary files. You may be required to enter the Windows XP CD-Rom for the additional file
9. Click Finish to complete the Windows Components Wizard
Installing IIS on Windows Vista/7

IIS 7 is not installed by default in Windows Vista/7 and is only available if you have the business, professional or ultimate variants of the operating system. To install the components (and Perception) you will need to have Administrator privileges.

If you are planning to install on Windows 7 you will need to install Perceptio Version 5.2 or higher. Perception Version 5.1 is not compatible with Windows 7.

To install IIS in Windows Vista/7 complete the following steps:

1. Click the Start button and select Control Panel
2. Click Programs and Features (or Programs in Windows 7)
3. Click Turn Windows features on or off
4. Select the following components from the Windows Features window
   - Internet Information Services
   - Web Management Tools
     - IIS 6 Management Compatibility
       - IIS 6 Management Console
       - IIS 6 Scripting Tools
       - IIS 6 WMI compatibility
       - IIS Metabase and IIS 6 configuration compatibility
     - IIS Management Console
     - IIS Management Scripts and Tools
     - IIS Management Service
   - World Wide Web Services
     - Application Development Features
       - .NET Extensibility
       - ASP
       - ASP.NET
       - CGI
       - ISAPI Extensions
       - ISAPI Filters
     - Common Http Features
       - Default Document
       - HTTP Errors
       - HTTP Redirection
       - Static Content
     - Security
       - Basic Authentication
       - Request Filtering
5. Click OK to install the components

Please note that Windows Vista and Windows 7 do not come with an IIS powered SMTP Service. If you intend to use E-mail services for your Perception installation you will need to install a 3rd party SMTP server. For information about setting up Perception to use E-mail, please refer to Configuring E-mail services.
Now that IIS has been installed you will also need to ensure that the ASP.NET state service has been started. In Windows Vista/7 it is NOT started by default. To start the state service:

1. Click the **Start** button, select **Run**, enter "services.msc" (without quotation marks) and click **OK**
2. In **Console Root | Services (local)** locate the **ASP.NET State Service**, right click on it and select **Properties**
3. Selecting **Automatic** from the **Startup type** drop down list
4. Click **Start** from the **Service status**
5. Click **OK**

**Web Service Extensions** need to be enabled for ASP.NET and PHP web pages to work on your server. By default they should be enabled, but to check and make sure they are enabled:

1. Launch IIS as an administrator
2. Select your computer in the IIS menu
3. Click the **ISAPI and CGI Restrictions** icon
4. Ensure that the Status of the following Web Service Extensions is set to **Allowed**
   - Active Server Pages
   - ASP.NET v2.0.XXXXXX
   - PHP: Hypertext Processor (if QPLA is installed on same machine) - This option may only appear after you have installed PHP

**Configuring language options**

If you are installing Questionmark Perception on a non-English version of Windows XP or Vista you will need to ensure that the correct code page or language packs are installed. These will ensure that Perception is able to write to the repository using the correct character sets for Perception.

For more information about installing Perception on a non-English operating system, please refer to the section **Installing on a non-English operating system**.
Configuring Windows Server 2003

To install Perception successfully on Windows Server 2003 you must ensure that the following actions have been taken:

- Install and configure IIS for Perception
- Installing the SMTP service
- Configure the code page conversion tables

If you are installing Perception in a multi-tiered environment you should ensure that the above steps are completed on the server used to host the following tiers:

- Presentation tier (QPLA)
- Perception Server (QABS and Enterprise Manager)

Installing and Configuring IIS for Perception

Internet Information Service is not installed by default. For instructions about how to install IIS, please refer to:

- Using the Configure Your Server Wizard
- Enabling the Web Service extensions

Once installed IIS will need to be configured to ensure that it works with Perception properly. IIS will need to be configured correctly to work, please refer to the following section to configure IIS:

- Configuring Parent Paths permissions

Using the Configure Your Server Wizard

This section highlights how to install IIS using the Configure Your Server Wizard. For more detailed instructions please refer to the documentation that accompanied your operating system.

To install IIS using the Configure Your Server Wizard:

1. From the Start menu, click Manage Your Server
2. Under Managing Your Server Roles, click Add or remove a role
3. Read the preliminary steps in the Configure Your Server Wizard and click Next
4. Under Server Role, click Application server (IIS, ASP.NET) and then click Next
5. Select the ASP.NET check-box on the Application Server Options page and then click Next
6. Read the summary and click Next
7. Complete the wizard, and then click Finish

If you are running a 64-bit version of Windows Server 2003, you will also need to carry out the steps indicated below before you attempt to install Perception:

- 64-bit Operating System of the Advanced configuration options chapter

Enabling the Web Service extensions

IIS must be configured to recognize the Perception Server .NET application files. To do so:

1. Open IIS Manager.
2. Select **Web Services Extensions** in the left-hand pane.

3. Ensure that the Status of the following Web Service Extensions is set to **Allowed**
   - All Unknown ISAPI Extensions
   - Active Server Pages
   - ASP.NET v2.0.XXXXXX
   - PHP: Hypertext Processor (if QPLA is installed on same machine) - This option may only appear after you have installed PHP

### Installing the SMTP service

If you intend to use the E-mail Broadcast feature of Perception you will need to install the SMTP service. To do this:

1. Click **Start | Control Panel**
2. Click **Add/Remove Programs**
3. Click **Add/Remove Windows Components**
4. After the Windows Components Wizard appears, select **Applications Server** and click **Details**
5. Select **Internet Information Services (IIS)**, then click **Details**
6. Select **SMTP Service**, then click **OK**
7. Continue to click **OK** to close all other dialog boxes until you're back at the Windows Components Wizard page, then click **Next**

Windows 2003 will copy the files required for the SMTP service (you might be prompted to insert the installation CD-ROM) and configure the service. Once the SMTP service has been installed follow the instruction in the following section for details about how to configure the SMTP service:

- **Configuring E-mail services**

### Configuring code page conversion tables

If you are installing Questionmark Perception on a non-English version of Windows Server 2003 you will need to ensure that the correct code page conversion table is installed. This will ensure that Perception is able to write to the repository using the correct character sets for Perception.

For more information about installing Perception on a non-English operating system, please refer to the section **Installing on a non-English operating system**. 
Configuring Windows Server 2008

To ensure that Perception will install correctly you will need to carry out the following steps to configure Windows Server 2008:

- **Install and Configure IIS for Perception**
- **Setting up SMTP on your server**
- **Configure language packs**

If you are installing Perception in a multi-tiered environment you should ensure that the steps described here are completed on the server used to host the following tiers:

- Presentation tier (QPLA)
- Perception Server (QABS and Enterprise Manager)

<i> If you are installing on a 64-bit version of this operating system it is recommended that you follow the instructions found in Windows Server 2008 R2. </i>

Installing and Configuring IIS for Perception

IIS 7.0 is not installed by default on Windows Server 2008. You can install IIS using Server Manager. The *Add Roles Wizard* will walk you through the process and prompt you for any required information.

To install IIS on Windows Server 2008:

1. Click **Start**
2. Click **Server Manager** in the **Administrative Tools** menu
3. Scroll down the summaries until you reach **Role Summary**

   ![Roles Summary](image-url)

4. Click **Add Roles**
5. Click **Next**
6. From the **Roles** window, click the box beside the **Web Server (IIS)** option
7. The Add Roles Wizard will display listing any additional features required for the Web Server (IIS) role. Click **Add Required Features**


8. Click **Next**
9. Click **Next**
10. Ensure the following **Role services** are selected

<table>
<thead>
<tr>
<th>Role service</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Common HTTP Features</strong></td>
<td>This role provides basic compatibility for HTTP access. It allows IIS to use normal HTML files, display HTTP errors and access main files apart from index files.</td>
</tr>
<tr>
<td>Static Content</td>
<td></td>
</tr>
<tr>
<td>Default Document</td>
<td></td>
</tr>
<tr>
<td>HTTP Errors</td>
<td></td>
</tr>
<tr>
<td>HTTP Redirection</td>
<td></td>
</tr>
<tr>
<td><strong>Application Development</strong></td>
<td>This role service provides additional functionality for IIS. It allows IIS to work with the required technologies used to create Perception.</td>
</tr>
<tr>
<td>ASP.NET</td>
<td></td>
</tr>
<tr>
<td>.NET Extensibility</td>
<td></td>
</tr>
<tr>
<td>ASP</td>
<td></td>
</tr>
<tr>
<td>CGI</td>
<td></td>
</tr>
<tr>
<td>ISAPI Extensions</td>
<td></td>
</tr>
<tr>
<td>ISAPI Filters</td>
<td></td>
</tr>
<tr>
<td><strong>Health and Diagnostics</strong></td>
<td>The Health and Diagnostics role provides IIS with the ability to monitor the actions being carried out on the web server. Log files can then be referred to if something fails.</td>
</tr>
<tr>
<td>HTTP Logging</td>
<td></td>
</tr>
<tr>
<td>Request Monitor</td>
<td></td>
</tr>
<tr>
<td>ODBC Logging</td>
<td></td>
</tr>
<tr>
<td><strong>Security</strong></td>
<td>Is automatically defined because it is required as part of the ASP.NET service</td>
</tr>
<tr>
<td>Basic Authentication</td>
<td></td>
</tr>
<tr>
<td>Request Filtering</td>
<td></td>
</tr>
<tr>
<td>IP and Domain Restrictions</td>
<td></td>
</tr>
<tr>
<td><strong>Management Tools</strong></td>
<td>The Management Tools contain all the various tools required to configure IIS. The IIS Console will allow administrators to view Virtual Directories created for Perception and configure the various Web Server functionality of Windows Server 2008. It will also allow Perception to install and create the required Virtual Directories.</td>
</tr>
<tr>
<td>IIS Management Console</td>
<td></td>
</tr>
<tr>
<td>IIS 6 Management Compatibility</td>
<td></td>
</tr>
<tr>
<td>Role service</td>
<td>Description</td>
</tr>
<tr>
<td>------------------------------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>• IIS 6 Metabase Compatibility</td>
<td></td>
</tr>
<tr>
<td>• IIS 6 WMI Compatibility</td>
<td></td>
</tr>
<tr>
<td>• IIS 6 Scripting Tools</td>
<td></td>
</tr>
<tr>
<td>• IIS 6 Management Console</td>
<td></td>
</tr>
</tbody>
</table>

For each role service you apply you may be required to add additional services and features that are required by the role service.

11. Click **Next**
12. Review your installation selections and click **Install**
13. When the installation is complete, review the results in the **Installation Results** window and click **Close**

Now that IIS has been installed you will also need to ensure that the ASP.NET state service has been started. In Windows Server 2008 it is NOT started by default. To start the state service you will need to launch the following as an administrator:

1. Click the **Start** button, enter "services.msc" (without quotation marks) right click on the item that is displayed and click **Run as administrator**
2. In **Console Root | Services (local)** locate the **ASP.NET State Service**, right click on it and select **Properties**
3. Selecting **Automatic** from the **Startup type** drop down list
4. Click **Start** from the **Service status**
5. Click **OK**

**Web Service Extensions** need to be enabled for ASP.NET and PHP web pages to work on your server. By default they should be enabled, but to check and make sure they are enabled:

1. Launch IIS as an administrator
2. Select your computer in the IIS menu
3. Click the **ISAPI and CGI Restrictions** icon
4. Ensure that the Status of the following Web Service Extensions is set to **Allowed**
   • All Unknown ISAPI Extensions
   • Active Server Pages
   • ASP.NET v2.0.XXXXXX
   • PHP: Hypertext Processor (if QPLA is installed on same machine) - This option may only appear after you have installed PHP

If you are running a 64-bit version of Windows Server 2008, you will also need to carry out the steps indicated below before you attempt to install Perception:

• **64-bit Operating System** of the **Advanced configuration options** chapter

You have now setup IIS. There are several other configuration changes to make once Perception is installed before it will work as expected. Please refer to the following sections once Perception has been installed:

• **Setting application pools to use ‘Classic’ mode** in the **Advanced configuration options** chapter
• **Configuring Parent Paths permissions** in the **Advanced configuration options** chapter
If you intend to use the Email Broadcast feature you can follow the instruction in the following section to install an SMTP Server:

- Setting up SMTP on your server

Setting up SMTP on your server

If you would like to use Email Broadcasting you can either setup Perception to connect to a 3rd party email server or you can setup your own SMTP service on your computer. This section will provide instructions about how to install the SMTP service in Windows Server 2008.

To install the SMTP service:

1. Click Start | Control Panel
2. Click Program and Features
3. Click Turn Windows features on or off
4. Select Features from the Server Manager menu on the left
5. Click Add Feature
6. Locate the SMTP Server entry and place a tick in the corresponding check-box
7. A window may appear detailing other features that are required by SMTP Server, click Yes to accept these
8. Click Install to install the required features and follow the instructions on screen

Once installed you will need to configure it to work with Perception. For further information, please refer to the section:

- Configuring E-Mail services

Configuring language packs

If you are installing Questionmark Perception on a non-English version of Windows Server 2008 you will need to ensure that the language pack is installed. This will ensure that Perception is able to write to the repository using the correct character sets for Perception.

For more information about installing Perception on a non-English operating system, please refer to the section Installing on a non-English operating system.
Configuring Windows Server 2008 R2

Windows Server 2008 R2 is an updated version of Windows Server 2008. The Windows Server 2008 R2 release differs from the original release in the following ways:

- Is only available in 64-bit versions
- Has IIS 7.5 rather than IIS 7.1
- Improved roles and group based security implemented throughout the system

If you are planning to install on Windows Server 2008 R2 you will need to install Perception Version 5.2 or higher. Perception Version 5.1 is not compatible with Windows Server 2008 R2.

To ensure that Perception will install correctly you will need to carry out the following steps to configure Windows Server 2008 R2 before attempting to install Perception:

- Install and Configure IIS for Perception
- Setting up SMTP on your server
- Configure language packs

If you are installing Perception in a multi-tiered environment you should ensure that the steps described here are completed on the server used to host the following tiers:

- Presentation tier (QPLA)
- Perception Server (QABS and Enterprise Manager)

Installing and Configuring IIS for Perception

IIS 7.5 is not installed by default on Windows Server 2008 R2. You can install IIS using Server Manager. The Add Roles Wizard will walk you through the process and prompt you for any required information.

To install IIS on Windows Server 2008 R2:

1. Click Start
2. Click Server Manager in the Administrative Tools menu
3. Scroll down the summaries until you reach Role Summary

4. Click Add Roles
5. Click Next
6. From the Roles window, click the box beside the Web Server (IIS) option
7. The Add Roles Wizard will display listing any additional features required for the Web Server (IIS) role. Click Add Required Features
8. Click **Next**
9. Click **Next**
10. Ensure the following **Role services** are selected

<table>
<thead>
<tr>
<th>Role service</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Common HTTP Features</strong></td>
<td>This role provides basic compatibility for HTTP access. It allows IIS to use normal HTML files, display HTTP errors and access main files apart from index files.</td>
</tr>
<tr>
<td>- Static Content</td>
<td></td>
</tr>
<tr>
<td>- Default Document</td>
<td></td>
</tr>
<tr>
<td>- HTTP Errors</td>
<td></td>
</tr>
<tr>
<td>- HTTP Redirection</td>
<td></td>
</tr>
<tr>
<td><strong>Application Development</strong></td>
<td>This role service provides additional functionality for IIS. It allows IIS to work with the required technologies used to create Perception.</td>
</tr>
<tr>
<td>- ASP.NET</td>
<td></td>
</tr>
<tr>
<td>- .NET Extensibility</td>
<td></td>
</tr>
<tr>
<td>- ASP</td>
<td></td>
</tr>
<tr>
<td>- CGI</td>
<td></td>
</tr>
<tr>
<td>- ISAPI Extensions</td>
<td></td>
</tr>
<tr>
<td>- ISAPI Filters</td>
<td></td>
</tr>
<tr>
<td><strong>Health and Diagnostics</strong></td>
<td>The Health and Diagnostics role provides IIS with the ability to monitor the actions being carried out on the web server. Log files can then be referred to if something fails.</td>
</tr>
<tr>
<td>- HTTP Logging</td>
<td></td>
</tr>
<tr>
<td>- Request Monitor</td>
<td></td>
</tr>
<tr>
<td>- ODBC Logging</td>
<td></td>
</tr>
<tr>
<td><strong>Security</strong></td>
<td>Is automatically defined because it is required as part of the ASP.NET service.</td>
</tr>
<tr>
<td>- Basic Authentication</td>
<td></td>
</tr>
<tr>
<td>- Request Filtering</td>
<td></td>
</tr>
<tr>
<td>- IP and Domain Restrictions</td>
<td></td>
</tr>
<tr>
<td><strong>Performance</strong></td>
<td>Provides advanced compression to improve the use of bandwidth</td>
</tr>
<tr>
<td>- Static Content Compression</td>
<td></td>
</tr>
<tr>
<td>- Dynamic Content</td>
<td></td>
</tr>
</tbody>
</table>
### Role service

<table>
<thead>
<tr>
<th>Role service</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compression</td>
<td>The Management Tools contain all the various tools required to configure IIS. The IIS Console will allow administrators to view Virtual Directories created for Perception and configure the various Web Server functionality of Windows Server 2008. It will also allow Perception to install and create the required Virtual Directories.</td>
</tr>
</tbody>
</table>

**Management Tools**
- IIS Management Console
- IIS Management Scripts and Tools
- Management Service
- IIS 6 Management Compatibility
  - IIS 6 Metabase Compatibility
  - IIS 6 WMI Compatibility
  - IIS 6 Scripting Tools
  - IIS 6 Management Console

For each role service you apply you may be required to add additional services and features that are required by the role service.

11. Click **Next**
12. Review your installation selections and click **Install**
13. When the installation is complete, review the results in the **Installation Results** window and click **Close**

Now that IIS has been installed you will also need to ensure that the ASP.NET state service has been started. In Windows Server 2008/R2, it is **NOT** started by default. To start the state service:

1. Click the **Start** button, select **Run**, enter "services.msc" (without quotation marks) and click **OK**
2. In **Console Root | Services (local)** locate the **ASP.NET State Service**, right click on it and select **Properties**
3. Selecting **Automatic** from the **Startup type** drop down list
4. Click **Start** from the **Service status**
5. Click **OK**

**Web Service Extensions** need to be enabled for ASP.NET and PHP web pages to work on your server. By default they should be enabled, but to check and make sure they are enabled:

1. Launch IIS as an administrator
2. Select your computer in the IIS menu
3. Click the **ISAPI and CGI Restrictions** icon
4. Ensure that the Status of the following Web Service Extensions is set to **Allowed**
   - All Unknown ISAPI Extensions
   - Active Server Pages
   - ASP.NET v2.0.XXXXXX
   - PHP: Hypertext Processor (if QPLA is installed on same machine) - This option may only appear after you have installed PHP
To enable 32-bit applications to run in a 64-bit version of IIS you will need to ensure that the correct setting are enabled. The settings are enabled by running specific commands and parameters from the command line. You will need to launch the command line prompt as an administrative user (you can do this by logging in as an administrative user or by right clicking on the command prompt icon and clicking Run As...)

To enable 32-bit applications to run in IIS enter the following command at the prompt:

```
cscript %SYSTEMDRIVE%\inetpub\adminscripts\adsutil.vbs SET W3SVC/AppPools/Enable32bitAppOnWin64 1
```

To enable the 32-bit version of the .NET 2.0 Framework for use with Perception you will need to run the following command:

```
%SYSTEMROOT%\Microsoft.NET\Framework\v2.0.50727\aspnet_regiis.exe -i
```

or if that is unavailable try:

```
%SYSTEMROOT%\Microsoft.NET\Framework64\v2.0.50727\aspnet_regiis.exe -i
```

You have now setup IIS. There are several other configuration changes to make once Perception is installed before it will work as expected. Please refer to the following sections once Perception has been installed:

- Setting application pools to use 'Classic' mode in the Advanced configuration options chapter
- Configuring Parent Paths permissions in the Advanced configuration options chapter

Setting up SMTP on your server

If you would like to use Email Broadcasting you can either setup Perception to connect to a 3rd party email server or you can setup your own SMTP service on your computer. This section will provide instructions about how to install the SMTP service in Windows Server 2008.

To install the SMTP service:

1. Click Start | Control Panel
2. Click Program and Features
3. Click Turn Windows features on or off
4. Select Features from the Server Manager menu on the left
5. Click Add Feature
6. Locate the SMTP Server entry and place a tick in the corresponding check-box
7. A window may appear detailing other features that are required by SMTP Server, click Yes to accept these
8. Click Install to install the required features and follow the instructions on screen

Once installed you will need to configure it to work with Perception. For further information, please refer to the section:

- Configuring E-Mail services

Configuring language packs

If you are installing Questionmark Perception on a non-English version of Windows Server 2008 you will need to ensure that the language pack is installed. This will ensure that Perception is able to write to the repository using the correct character sets for Perception.
For more information about installing Perception on a non-English operating system, please refer to the section Installing on a non-English operating system.
Installing PHP

Perception Version 5 requires PHP to be installed and configured before you will be able to deliver assessments to participants via the Questionmark Presentation Layer for Assessments (QPLA). QPLA requires PHP version 5.2.5 or higher to be installed and configured before it will function correctly. However, if you are installing in a multi-tiered environment you will only need to install PHP on the server you intend to use as the Presentation tier (where QPLA will be installed). For further information about the possible arrangement of Perception Version 5, please refer to Types of installations.

PHP can be installed in several ways, using the:

<table>
<thead>
<tr>
<th>PHP</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Questionmark Prerequisites installer</strong></td>
<td>The Questionmark Prerequisites contains a customized installation of PHP for Questionmark Perception. If you are setting up PHP for the first time or are unfamiliar with the technology it is recommended that you use the Questionmark Prerequisites to automatically install and configure PHP. The Questionmark Prerequisites installer can be used for production purposes but for improved performance it is recommended that you install PHP manually and apply the necessary adjustments to get the best out of it.</td>
</tr>
</tbody>
</table>
| **PHP installer from the PHP Group**     | If you want to deploy Perception in a production environment you should ensure that your installation of PHP is performance tuned you will need to install PHP using the PHP installer. PHP can be installed and configured manually using the available installer from the PHP web site at: www.php.net It is recommended if you are installing PHP on a Windows environment that you install PHP to use FastCGI. To setup FastCGI you will need to manually install PHP using the PHP installer and not via the Questionmark Prerequisites. For further information, please refer to the Knowledge Base articles for more information:  
  If you are installing QPLA on Linux, please refer to Configuring Linux for QPLA for instructions about how to install PHP on Linux. |

**Questionmark Prerequisites**

If you intend to use the PHP included in the Questionmark Prerequisites installer follow the instructions below.

The Questionmark Prerequisites can be downloaded from the Downloads section of the Questionmark web site at:
To install the Questionmark Prerequisites:

1. Copy the Prerequisites installer to the server you will use to run the Presentation tier (QPLA). This computer needs to be accessible by participants using the Internet or intranet and must also be able to connect to the server running Perception Server and the Business Logic tier (QABS)

   This is only applicable if you are installing to a multi-tiered environment. If you are installing Perception to a single machine ensure the Prerequisites are copied to it.

2. Locate the Prerequisites installer and double-click the file

3. Follow the steps shown on the screen to install the Prerequisites

   By default the Prerequisites install the PHP files in the folder:

   **C:\PHP**

   ![](image)

   It is possible to alter the location, but the alternative location cannot have a space in the folder name. For example:

   - ✓ C:\Questionmark\PHP
   - ✗ C:\Program Files\PHP

   The Prerequisites installer also configures IIS to use PHP

4. Once the Prerequisites have finished installing click Finish
Configuring Linux for QPLA

If you are installing a multi-tiered environment and you intend to use Linux to install the Questionmark Presentation Layer for Assessments you will need to ensure that the Linux server you are using is set up correctly. You need to have Apache and PHP installed on Linux.

This section provides information about how to manually configure Apache and PHP on the following Linux distributions:

- **Ubuntu Server 8 or 9**
- **RedHat Enterprise Linux 5**
- **Novell SUSE Linux Enterprise 11**

It also provides details about how to check that PHP is working and all the extensions are enabled in the section:

- **Testing PHP**

The Linux distributions listed above are distributions that Questionmark support. However, if you are attempting to use an unsupported distribution assistance from Questionmark will be limited.

If you are installing Perception on a Linux platform it means you have opted to install in a multi-tiered environment. Prior to completing the steps below you should ensure that you have configured your Windows server systems to allow Perception Version 5 (Enterprise Manager and QABS) to be installed. Once you have done this you will also need to configure your Linux server with some of the items listed above. The following information assumes you have already installed Linux and are proficient with operating in a Linux environment. Linux needs to be able to access the other tiers of Perception via a network or the Internet.

**Configuring Ubuntu Server 8 or 9**

To install Apache, PHP and SAMBA on Ubuntu you will need to have an appropriate administrative user. This section shows you how to install the necessary components from the command line. This is because Ubuntu Server 8 or 9 is a stripped down install and does not include any graphical user interface like KDE or GNOME by default. From the command prompt you will need to run the following:

```
sudo apt-get install apache2
sudo apt-get install php5
sudo apt-get install php5-curl
sudo apt-get install libapache2-mod-php5
sudo apt-get install php5-xsl
sudo apt-get install smbfs
sudo apt-get install smbclient
```

Once installed you will need to restart Apache, do this by running the following from the command prompt:

```
sudo /etc/init.d/apache2 restart
```
Once you have installed and configured Apache and PHP test it is working by navigation to the following page:

http://<linuxserver>/

Where <linuxserver> is the host name for your Linux server. You should see the message 'It works!' if Apache was installed correctly.

To check the status of your PHP installation you will need to create a test file to connect to from a browser. You can create the test file in VI, VIM, NANO, or any other text editor.

For example, to create the info.php file in NANO enter the following text at the command prompt:

```
sudo nano /var/www/info.php
```

To test your PHP installation:

1. Start by creating the file info.php in the /var/www directory as described above
2. Insert the following line into the info.php file:
   ```php
   <?php phpinfo(); ?>
   ```
3. Save the changes
4. Now check that the extensions are enabled, refer to Testing PHP for details.

You will also need to install a ZIP tool to extract the QPLA files into Apache when you install it. To install a ZIP tool enter the following at the command prompt:

```
sudo apt-get install zip
```

If the steps above do not work, please refer to the documentation associated with your Linux distribution for more details.

**Configuring RedHat Enterprise Linux 5**

RedHat Enterprise Linux 5 can either be configured in 2 different ways:

- Through a Graphical User Interface
- Via Command prompt

This section assumes you will be using the GUI to setup and install RedHat. RedHat can be configured during installation to include all the relevant packages. However, this section assumes you have installed a basic installation and are configuring Linux manually.

To install Apache 2 and PHP, please follow the steps below:

1. Log in to RedHat
2. Click Applications followed by Add/Remove Software
3. Click the Search tab
4. Enter httpd in the text-box and click Search
   
   A list of packages matching the searched term will be displayed.
5. Select the httpd-2.x.x-xx.el5.<arch>
   
   Where x is the version number and <arch> is the architecture that matches your installation. For example, httpd-2.2.3-22.el5.i386
6. Click Apply and wait for the package to be installed
7. Return to the **Search** tab and enter **PHP** in the text-box and click **Search**

8. Place a tick against the following packages:
   - `php-5.x.x-xx.x.el5.<arch>`
   - `php-xml-5.x.x-xx.x.el5.<arch>`
   - `php-soap-5.x.x-xx.x.el5.<arch>`

   Where `x` is the version of the extension you would like to install and `<arch>` is the architecture that matches your installation. For example, i386. It is recommended that you install the latest version of each extension.

9. Click **Apply** and wait for the package to be installed

10. Return to the **Search** tab and enter **CURL** in the text-box and click **Search**

11. Select curl-7.xx.x-x.el5.i386

   Where `x` is the version of the extension you would like to install and `<arch>` is the architecture that matches your installation. For example, i386. It is recommended that you install the latest version of each extension.

12. Click **Apply** and wait for the package to be installed

13. Return to the **Search** tab and enter **SAMBA** in the text-box and click **Search**

14. Place a tick against the following package if they are not already installed:
   - `samba-common-3.x.xx-x.x.el5.<arch>`
   - `samba.client-3.x.xx-x.x.el5.<arch>`

   Where `x` is the version of the extension you would like to install and `<arch>` is the architecture that matches your installation. For example, i386. It is recommended that you install the latest version of each extension.

15. Click **Apply** and wait for the package to be installed

Once installed Apache can be started.

**Starting Apache**

Once Apache is installed you will need to start the service. To do this complete the following steps:

1. Select **System | Administration | Server Settings | Services** and enter the administrators password if necessary
2. In the list on the left hand side of the window locate the **httpd** service and click **Start**
3. Click **Save** and close the application

Once this has been done you should check that Apache is correctly serving pages. To do this browse to the following address:

http://<linuxserver>

Where `<linuxserver>` is the name or IP address of you RedHat Linux machine.

Alternatively, you can navigate to the following address if you are browsing from your Linux server:

http://localhost/

You should see a page similar to the following displayed if Apache is running correctly:
Now that Apache has been setup and configured you will need to check that PHP is also available. To do this complete the following steps from the command prompt as the root user:

1. Enter the following:
   
   ```bash
gedit /var/www/html/info.php
   ```

2. The GEdit window opens. Add the following to the file
   
   ```php
   <?php phpinfo(); ?>
   ```

3. Click **Save**

4. Now check that the extensions are enabled, refer to [Testing PHP](#) for details.

If the steps above do not work, please refer to the documentation associated with your Linux distribution for more details.

## Configuring Novell SUSE Linux Enterprise 11

SUSE Linux Enterprise 11 is a Graphical User Interface enabled Linux distribution. To install the necessary components to run QPLA, please follow the steps below:

1. Click **Computer** followed by **Install Software**
2. Enter your administrative password and click **Continue**
3. In the **Search** text-box, enter **Apache** and click **Search**
4. Place a tick against the following packages:
   - `apache2`
   - `apache2-mod-php5`
   - `apache2-example-pages`
5. In the **Search** text-box enter **PHP** and click **Search**
6. Place a tick against the following extensions:
   - `php5-curl`
   - `php5-xsl`
   - `php5-soap`
   - `php5-openssl` (only if you intent to use SSL)
7. Now in the **Search** text-box enter **cifs** and click **Search**
8. Place a tick against the **cifs-mount** extension
9. Click **Accept**
10. Click **Continue** and wait for the packages to install

Now that Apache has been installed you will need to configure it. To do this:

1. Click **Computer | YaST**
2. Locate and click **HTTP Server**
3. Click **Next**
4. Ensure the **Enable PHP5 Scripting** check-box is selected and click **Next**
5. Click **Next** again
6. You will not be setting any Virtual Hosts so click **Next**
7. Select the **Start Apache2 Server When Booting** option button and click **Finish**

Once you have installed and configured Apache and PHP test it is working by navigating to the following page:

http://<linuxserver>/

Where `<linuxserver>` is the host name for your Linux server. You should see the message 'It works!' if Apache was installed correctly.

To check the status of your PHP installation you will need to create a test file to connect to from a browser. You can create the test file in GEdit, or any other text editor. To create the info.php file in GEdit complete the following steps at the command prompt once logged in as the root user:

1. Enter the following:
   ```
   gedit /srv/www/htdocs/info.php
   ```
2. Add the following line into the info.php file:
   ```
   <?php phpinfo(); ?>
   ```
3. Save the changes
4. Now check that the extensions are enabled, refer to **Testing PHP** for details.

If the steps above do not work, please refer to the documentation associated with your Linux distribution for more details.

**Testing PHP**

Once you have created the info.php page carry out the following steps to check that everything is configured correctly:

1. Navigate to the following page on your Linux server:
   ```
   http://<linuxserver>/info.php
   ```
   or if viewing from the Linux server:
   ```
   http://localhost/info.php
   ```
2. Check that the XSL, CURL and SOAP extensions are present and enabled

<table>
<thead>
<tr>
<th><strong>cURL support</strong></th>
<th><strong>enabled</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>cURL Information</strong></td>
<td>libcurl/7.18.2 OpenSSL/0.9.8g zlib/1.2.3.3 libidn/1.8</td>
</tr>
</tbody>
</table>
Once you have configured Linux and confirmed that it is all working, please refer to the Linux/Windows environment section for instruction on installing the relevant part of Perception on Linux.
Database setup for Questionmark Perception

This chapter describes how to create and configure the following types of database to use as your Questionmark Perception Version 5 repository:

- **Oracle 10g or 11g**
- **Oracle 9i Release 2**
- **SQL Server 2005 and 2008**
- **SQL Server 2005 / 2008 Express**

You should only use SQL Server 2005/2008 Express for light use or evaluation and demonstration purposes. For production purposes where you expect to deliver more than 1000 assessments per week we strongly recommend that:

- You use a SQL Server or Oracle database
- Your database is located on a separate application server to your Perception Server

To create a new database for use with Perception, follow the instructions in the sections above.

**Tip**

The default instructions for setting up an SQL Server use SQL authentication. However, if you would prefer to use Windows authentication with your Perception database this is possible provided you are using SQL Server 2005/2008. To find out how to use Windows authentication please refer to the following section in the Advanced configuration options chapter:

[Database Windows authentication](#)
Creating an Oracle 9i Release 2 database

To create an Oracle database for use with Perception, you need to:

- Create a Tablespace for the database
- Create a database user
- Configure the Local Service Name
- Create an ODBC data source

How you perform these steps will depend on which version of Oracle you are using. The instructions given below assume that you are using Oracle 9i Release 2. If you are using 10g or 11g, please refer to Creating an Oracle 10g or 11g database.

We assume that your Oracle installation is already in place and that you are familiar with administering Oracle databases. We also assume that you are able to log on to Oracle under an account with Oracle DBA privileges and that you have created a table space using the correct Character Sets. For further information on the correct Character Sets to use in a table space please refer to Supported databases in the System Requirements section.

If you will be using Japanese characters with an Oracle database on an English operating system, you will need to set the NLS_Characterset to WE8MSWIN1252 when you install your Oracle server. Otherwise you will need to set the NLS_Characterset to AL32UTF8. Refer to Oracle Help for more information.

Creating a Tablespace

To create a Tablespace for your database:

1. Open Enterprise Manager Console
2. Log in to the database server you will be creating the new database on
3. Expand the database server folder and expand the Storage sub-folder
4. Right-click Tablespace and click Create
5. Enter a name and double-click the entry in the Size field to open the Create Datafile dialog
6. Set the File Size to 50 megabytes. You should set this to a larger number for high-use systems
7. Open the Storage tab and tick Automatically extend datafile when full (AUTOEXTEND)
8. Click OK
Creating a database user

To create a database user:

1. Open the Enterprise Manager Console.
2. Log in to the database server you will be creating the new database on.
3. Expand the Security folder.
4. Right-click Users and click Create... The Create User dialog is displayed.
5. Enter a name for the new database user and under Tablespace, select the Tablespace you just created from the Default drop-down list.
6. Open the Role tab and assign the user the following roles:
   - CONNECT
   - CTXAPP (this will only be available if OracleText is installed)
   - RESOURCE
7. Open the System Privileges tab and assign the user the following System Privileges. While these system privileges are part of the Roles set previously (CONNECT and RESOURCE) they need to be added independently due to the way that Perception is configured to use Oracle...
8. Click **Create**. A blank database is created.

To be able to change security settings for administrators using Authoring Manager, you will also need to assign the CREATE TABLE system privilege to the individual user who will be changing the security settings.

Next, you will need to configure the Local Service Name and then create an ODBC data source. This process is the same for Oracle 10g or 11g databases as it is for Oracle 9i Release 2 databases. Therefore, please refer to the following sections in the Creating an Oracle 10g or 11g database section for instructions:

- Configuring the Local Service Name
- Creating an ODBC data source
Creating an Oracle 10g or 11g database

To create an Oracle 10g or 11g database for use with Perception, you need to:

- Create a Tablespace for the database
- Create a database user
- Configure the Local Service Name
- Create an ODBC data source

The steps for creating an Oracle 10g or 11g database are very similar. The instructions given below assume that you are using Oracle 10g but they will be very similar for Oracle 11g. If you are using 9i Release 2, please refer to Creating an Oracle 9i Release 2 database.

We assume that your Oracle installation is already in place and that you are familiar with administering Oracle databases. We also assume that you are able to log on to Oracle under an account with Oracle DBA privileges and that you have created a table space using the correct Character Sets. For further information on the correct Character Sets to use in a table space please refer to Supported databases in the System Requirements section.

If you will be using Japanese characters with an Oracle database on an English operating system, you will need to set the NLS_Characterset to WE8MSWIN1252 when you install your Oracle server. Otherwise you will need to set the NLS_Characterset to AL32UTF8. Refer to Oracle Help for more information.

Creating a Tablespace

To create a Tablespace for your database:

1. Open Enterprise Manager Console on your database server.
2. Log in to the database server you will be creating the new database on.
3. Open the Administration tab.
4. Under Storage, click Tablespaces
5. Click Create
6. Enter a name for the new Tablespace.
7. Under Datafiles, click Add
8. Enter the following information:
   - Enter a **File Name** for the datafile
   - Set the **File Size** to a larger number than the default 100mb for high-use systems.
   - Tick **Automatically extend datafile when full (AUTOEXTEND)** and specify a suitably high value in the Increment box.

9. Click **Continue** to return to the **Create Tablespace** page, and then click **Ok** to create the Tablespace. The new table will appear in the list of Tablespaces.

**Creating a database user**

To create a database user:

1. Open the Enterprise Manager Console.
2. Log in to the database server you will be creating the new database on.
3. Open the **Administration** tab.
4. Under **Security**, click **Users**
5. Click **Create**
Enter the following information:

- Enter a database user name and password.
- In the Default Tablespace box, enter the name of the Tablespace you created in Creating a Tablespace.
- In the Temporary Tablespace box, enter the name of a temporary Tablespace. By default, this is TEMP.

7. Open the Roles tab and click Modify
8. Assign the user the following roles:
   - CONNECT
   - CTXAPP (only available if OracleText is installed)
   - RESOURCE

9. Click OK

10. Open the System Privileges tab and click Modify

11. Select the following System Privileges and click OK:
   - CREATE SESSION
12. Select the database user you created. Ensure that the Default Tablespace and Temporary Tablespace values are correct.

To be able to change security settings for administrators using Authoring Manager, you will also need to assign the CREATE TABLE system privilege to the individual user who will be changing the security settings

Next, you will need to configure the Local Service Name and then create an ODBC data source.

**Configuring the Local Service Name**

To configure the Local Service Name, you will need the Oracle client installed on your Perception Server machine.

To configure the Local Service Name:
1. Open Oracle Net Manager on your Perception Server machine
2. Select the **Service Naming** folder in the **Oracle Net Configuration** hierarchy and click the Add (+) button
   
   The **Net Service Name Wizard** screen is displayed
3. Enter a **Net Service Name** and click **Next**. Make a note of this name as you will need to use it when you create an ODBC data source
4. Select TCP/IP (Internet Protocol) and click **Next**
5. Enter the **Host Name** and click **Next**. This is the name of the machine that the Oracle database is installed on. If you are not using the default Port Number, you can enter the port you are using as well
6. Enter the **Service Name** of the Oracle instance and click **Next**
7. Click **Test** to verify the connection
8. Click **Finish**

**Creating an ODBC data source**

Once you have created your database, you will need to create a data source. This should be done on the Perception Server machine, and not the Oracle database server.

To do so:
1. Open the ODBC Data Source Administrator on your Perception Server machine
   
   To do so on a:
   - 32-bit operating system go to **Control Panel** double-click **Administrative Tools** and then **Data Sources (ODBC)**
   - 64-bit operating system navigate and launch the following ODBC driver:

   `C:\Windows\SysWOW64\odbcad32.exe`
2. Open the **System DSN** tab
3. Click **Add**...
4. Select **Oracle in OracleVersion** from the list and click OK (Where *OracleVersion* is the version name of your Oracle client install)

![Oracle ODBC Driver Configuration](image)

5. Enter a name and description for the new data source in the appropriate text-boxes
6. Specify in the **TNS Service Name** text-box the Net Service Name of the server you want to connect to (that is, the machine on which your database is installed). This is the Net Service Name you specified in **Configuring the Local Service Name** above
7. Enter the name of the database user you have created in the **User ID** text-box
8. Click **OK**, and **OK** again to close the ODBC Data Source Administrator

You can now create your repository.

---

If you are unable to successfully connect your Oracle client to the Oracle database server you should check that the Oracle Client installed with all the necessary permissions. To do this:

1. Navigate to where the client is installed (For example, in Oracle 11g client the default installation path is *C:\app\Administrator\product\11.2.0*)
2. Right click on the Oracle client install folder (*\11.2.0*) and select **Properties**
3. Select the **Security** tab
4. Check if **Authenticated Users** exists in the **Group or user names list** box and that it has fill control

If Authenticated Users does not appear, complete the following steps:

1. In the **Properties** window click **Edit** followed by **Add**
2. In the **Enter the object names to select** text-box enter "Authenticated Users" (without the quotation marks) and click **Check Names**
3. Click **OK** to add the user
4. Place a tick in the **Allow** column for the **Full control** check-box
5. Click **OK** and wait for the permissions to be updated and return to the **Properties** window
6. Click Advanced followed by **Change Permissions...**
7. Select the **Authenticated Users** from the **Permission entries** list
8. Check the **Replace all child object permissions with inheritable permissions from this object** check-box and click **OK**
9. Click **OK** to all the open windows and restart your computer

You should now be able to access the ODBC connection again and make a successful connection
Creating a SQL Server 2005 or 2008 database

The instructions given below assume that you are using SQL Server 2005 or 2008. This method also assumes you will be using SQL Server authentication mode to setup the database. If you intend to use Windows authorization for your SQL Server 2005 or 2008 database, please refer to:

Using Questionmark Perception and Windows Authentication in SQL Server

To create a SQL Server 2005 or 2008 database for use with Perception:

1. Open SQL Server Management Studio
2. Right-click the Database folder on the attached database server and select New database
3. Enter the database name
4. From the Options page set the collation to SQL_Latin1_General_CP1_CI_AS and click OK

Once you have created the database, there are three further tasks to complete:

- Create a database login
- Configure SQL Server authentication
- Switching on Full Text Indexing
- Create an ODBC data source

Creating a database login

Once you have created your database, you need to set up a new login. To do so:

1. Open the SQL Server Management Studio
2. Expand the server folder for the server on which you have created your database in the navigation pane
3. Expand the Security sub-folder
4. Right-click Logins and select New login...
5. Enter a name for the new login
6. Select SQL Server Authentication and enter a password
7. Un-check the Enforce password policy, Enforce password expiration and User must change password at next login check-boxes
8. In the Default database list, select the database you created
9. Open the User Mapping page and tick the database you created
10. Tick the **db_owner** box to assign permissions
11. Click **OK**

**Configure SQL Server authentication**

To ensure that SQL Server is configured to provide authentication based on the SQL Server login you have created:

1. Open the SQL Server Management Studio
2. Right-click the server you have created the database in and select **Properties**
3. Open the **Security** page
4. Ensure that **SQL Server and Windows Authentication Mode** is selected and click **OK**

### Switching on Full Text Indexing

If you intend to use question searching in Authoring Manager you will need to ensure that Full Text indexing is enabled for the database. To enable Full text indexing in SQL Server Management Studio:

1. Right click on the database you created above
2. Select **Properties**
3. Click **Files** from the **Select a page** menu
4. Place a check mark in the **Use Full-text indexing** check-box

5. Click **OK**

If the check box is already ticked and grayed out this is because Full Text Indexing has been enabled for the whole server meaning all the databases have Full Text Indexing enabled by default.

### Creating an ODBC data source

You need to create an ODBC data source to link Perception to the database you have created. If you are using a 64-bit version of Windows (For example, Windows Server 2008 R2) you will need to use the 32-bit version of ODBC driver.

To create a data source:

1. Open the ODBC Data Source Administrator on your Perception machine as an administrative user

To do so on a:

- 32-bit operating system go to **Control Panel** double-click **Administrative Tools** and then **Data Sources (ODBC)**
• 64-bit operating system, such as Windows Server 2008 R2, navigate and launch the following ODBC driver:

C:\Windows\SysWOW64\odbcad32.exe

2. Open the System DSN tab
3. Click Add...
4. Select the SQL Server driver from the list and click Next
5. Enter a name for the new data source and select the server you want to connect to (that is, the machine on which your database is installed) from the drop-down list
6. Click Next
7. Ensure that With SQL Server authentication using a login ID and password entered by the user is selected

How should SQL Server verify the authenticity of the login ID?

- With Windows NT authentication using the network login ID.
- With SQL Server authentication using a login ID and password entered by the user.

To change the network library used to communicate with SQL Server, click Client Configuration.

8. Enter the ID and password of the login you created and click Next
9. Select your database from the default database drop-down list and click Next

- Change the default database to:

10. Click Finish. Review the details of the new ODBC data source that will be created and click OK

You can click Test Data Source to check the connection.
11. Click OK to close the ODBC Data Source Administrator.

You can now create your repository.
Creating an SQL Server 2005/2008 Express database

SQL Server 2005/2008 Express is a free desktop database that is limited in functionality when compared to SQL Server 2005/2008. For serious production use, you should not use an SQL Server Express database. However, for running a light production system needing to deliver approximately 1000 assessments per week it is adequate.

The limits imposed on SQL Server Express include:

- Full Text Search is not included as standard - It is only available if you download and install the Express Advanced Services add-on
- Management Studio is not included as standard - A limited version of Management Studio is available as SQL Server Management Studio Express which can be downloaded separately or is available as part of Express Advanced Services add-on
- CPU - Is limited to 1 CPU
- RAM - Can only use a maximum of 1 GB
- Database Size - Maximum database size is 4 GB of information

It is recommended that you use the following edition of SQL Server Express:

- SQL Server 2005/2008 Express Edition with Advanced Services

This version is the most complete version of SQL Server 2005/2008 Express and contains all the components listed above and is a requirement if you intend to use the question searching features.

SQL Server 2005 Express with Advanced Services can be downloaded from the following web site:


SQL Server 2008 Express with Advanced Services can be downloaded from the following web site:


To install SQL Server 2005/2008 Express, please refer to the instructions that accompany the product.

⚠️ When installing SQL Server 2005/2008 Express ensure you set the following appropriately:

- Authentication Mode should be set to **Mixed mode**
- The collation should be set to **SQL_Latin1_General_Cp1_CI_AS** (Latin1_General, Case insensitive, Accent sensitive)

There is no need to create a database or ODBC connection if using SQL Server 2005/2008 Express. This is automatically done by the Shared Repository Manager.
Installing on a single server

The Perception Server install program is available from the Download area of the Questionmark web site. Once it has been downloaded onto the target machine, the install application can be run by double-clicking the install program icon.

Ensure you have completed the steps in Configuring your server to ensure the successful installation of Perception. If you are installing Perception Server on a non-English operating system, please refer to Installing Perception Server on a non-English operating system prior to running the install application.

The install application requires you to enter a password before it will install Perception Server. This password should have been sent to you by email. Please contact Questionmark if you have not received this email.

The install application will guide you through each step in the installation process, prompting you to specify your preferences at each stage. You must be logged in to Windows as a local system Administrator. If you do not have these privileges Perception Server will not install correctly. Alternatively, if you know the administrator user name and password but are not logged in as that user you can right click on the install application and select Run As Administrator. You will be prompted to enter the username and password of a valid administrative user before being able to continue.

To install Perception on a single server:

1. Launch the installer application as an administrative user, see above for details.
2. Enter the password to run the installer and click OK.
3. Click Next > and follow the on screen instructions
4. To install Perception on a single server select the Typical setup type and click Next >. If you will be installing Perception across multiple servers, please refer to the section Installing a multi-tiered environment
5. Keep the default folders or select folders to install:
   - Perception Server 5
   - Repository Files

   By clicking **Browse** for each of the options and selecting an appropriate folder location

6. Click **Next >** to continue

7. If this server is to be accessed externally enter the valid URL for the web server by selecting the **User Defined** option box and entering the appropriate domain name in the text-box. Otherwise select **This Computer**

   ![](image)

   **WARNING:**

   If you are intending to access the Perception Server using an IP address you must select the **User Defined** setting and enter the IP address in the text-box. Failure to do so will cause certain functions in Perception to work incorrectly. For example:
   - File upload questions will not work correctly, by not allowing participants to upload answers
   - Links to reports that a participant has access to will not work

8. Click **Next >**

9. Click **Install** to begin the installation

   A warning will be displayed indicating that PHP will need to be installed before the application will be functional. Ensure you have completed the steps indicated in the section **Installing the Questionmark Prerequisites** and click **OK**.

   If you have not installed PHP or the Prerequisites click **OK** to install Perception 5 and carry out the instruction in the section **Installing the Questionmark Prerequisites** before attempting to access Perception.

10. Once the installer has finished copying the necessary files and configuring your system you will be presented with the following screen
11. Leave the check-boxes checked and click Finish to:
   - Open a web page with further information about how to configure Perception
   - Launch the Shared Repository Manager to create a repository for your installation. Refer to the section Creating a repository for further details

Now that Perception is installed follow the steps in the following sections to:
   - Create a repository
   - Verify your installation of Perception
Multi-tiered installation

Perception is capable of being installed in two types of multi-tiered environments. These types are described below:

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Windows environment</td>
<td>An installation where QPLA is installed on a separate server to QABS and Enterprise Manager. All the machines are Microsoft Windows based machines.</td>
</tr>
<tr>
<td>Linux/Windows Environment</td>
<td>An installation where QPLA is installed on a separate server to QABS and Enterprise Manager. The machine where QPLA is installed and to be delivered from a Linux server. The machine where QABS and Enterprise Manager reside is a Microsoft Windows machine.</td>
</tr>
</tbody>
</table>
Installing Perception on a multi-tiered Windows environment

The Perception Server install program is available from the Download area of the Questionmark web site. Once it has been downloaded onto the target machine, the install application can be run by double-clicking the install program icon.

Ensure you have completed the steps in Configuring your server to ensure the successful installation of Perception. If you are installing Perception Server on a non-English operating system, please refer to Installing Perception Server on a non-English operating system prior to running the install application.

Installing Perception in a multi-tiered environment is a case of using the installation application to only install the necessary parts on each server. For example, QABS is installed on one machine and QPLA on another.

It is recommended that you install Perception Server in a multi-tiered environment in the following order:

1. QABS
2. QPLA

During the installation on a multi-tiered environment you will need to know certain information about the other servers you are installing on. You will need to determine the following before installing:

- Perception Server Root - The URL used to access the system
- QPLA Location - The server used to install QPLA
- QABS Server IP address - The IP address for the QPLA and QABS to communicate

If you are installing Perception on a multi-tiered environment that includes a Linux/Unix, please refer to the section:

- Installing Perception on a multi-tiered Linux/Unix and Windows environment

The install application requires you to enter a password before it will install Perception Server. This password should have been sent to you by email. Please contact Questionmark if you have not received this email.

For installation instructions please refer to the following sections:

- Step 1: Installing Perception Server and QABS
- Step 2: Installing QPLA
- Step 3: Configuring your servers to use the File Upload question type
- Step 4: Setting up your Firewall rules (optional)

Step 1: Installing QABS

The install application will guide you through each step in the installation process, prompting you to specify your preferences at each stage. Copy the installation application to the server and follow the steps below.
to specify your preferences at each stage. You must be logged in to Windows as a local system Administrator. If you do not have these privileges Perception Server will not install correctly. Alternatively, if you know the administrator user name and password but are not logged in as that user you can right click on the install application and select Run As Administrator. You will be prompted to enter the username and password of a valid administrative user before being able to continue.

To install QABS:

1. Launch the installer application as an administrative user, see above for details.
2. Select Custom from the Setup Type window
3. Select the Install everything except the Questionmark Presentation Layer for Assessments option
4. Determine the location of where you want to install **Perception Server** (system files) and the **Repository files** by entering the information in to the appropriate text-boxes.
5. In the Perception Server Root window choose the required setting.

The settings include:
- **User Defined** if you intend for Perception to be accessed through a defined URL. Enter the URL in the appropriate text-box. For example, www.mycompany.com
• **This Computer** if the users will be using the computer name as the URL to access Perception

If you are intending to access the Perception Server using an IP address you must select the **User Defined** setting and enter the IP address in the text-box. Failure to do so will cause certain functions in Perception to work incorrectly. For example:

- File upload questions will not work correctly, by not allowing participants to upload answers
- Links to reports that a participant has access to will not work

6. In the QPLA Server Location window you will need to enter the URL used to access the QPLA server.

The QPLA Server Location can be:

- A defined URL that is used by the QPLA server. For example, www.qpla.mycompany.com
- The computer name or IP address of the QPLA server

7. In the Installation Options window you will need to define which installation options you want to enable.

The installation options include:

- Whether you want the installer to automatically create the virtual directories or not. For further information about the virtual directories created and required by Perception, please refer to the *Creating your own virtual directories* section.
- Whether you want the authors connecting to the Shared Repository through Authoring Manager to automatically be given the chance to upgrade to the latest version of Authoring Manager or not.

8. Follow the on screen instructions to complete the installation on this server

9. Launch the Shared Repository Manager and follow the instruction in the *Creating a repository* section to create a shared repository.
Step 2: Installing QPLA

The install application will guide you through each step in the installation process, prompting you to specify your preferences at each stage. Copy the installation application to the server and follow the steps below.

The install application will guide you through each step in the installation process, prompting you to specify your preferences at each stage. You must be logged in to Windows as a local system Administrator. If you do not have these privileges Perception Server will not install correctly. Alternatively, if you know the administrator user name and password but are not logged in as that user you can right click on the install application and select Run As Administrator. You will be prompted to enter the username and password of a valid administrative user before being able to continue.

To install QPLA:

1. Launch the installer application as an administrative user, see above for details.
2. Select Custom from the Setup Type window
3. Select the Install only the Questionmark Presentation Layer for Assessments option
4. Determine the location of where you want to install Perception Server (system files) and the Repository files by entering the information into the appropriate text-boxes (Please note, that the Repository files folder will not actually be created on this server as it is only needed on the business logic tier)
5. In the QABS Server IP Address text-box insert the IP of the server where you installed QABS, see above
6. In the **QABS Virtual Directory Name** text-box insert the name of the virtual directory used for QABS. If you:
   - Created your own web share in the steps above enter this in to the text-box
   - Allowed the installer to create the web shares leave the default value in the text-box. The default web share for **qabs**

7. Click **Next**

8. In the **Installation Options** window you can choose to allow the installer to automatically create the virtual directories or not. For further information about the virtual directories created and required by Perception, please refer to the [Creating your own directories](#) section

9. Click **Install** to begin the installation

A warning will be displayed indicating that PHP will need to be installed before the application will be functional. Ensure you have completed the steps indicated in the section [Installing the Questionmark Prerequisites](#) and click **OK**.

If you have not installed PHP or the Prerequisites click **OK** to install Perception 5 and carry out the instruction in the section [Installing the Questionmark Prerequisites](#) before attempting to access Perception.

10. Follow the on screen instructions to complete the installation

**Step 3: Configuring your servers to use the File Upload question type**

Once you have installed both portions of Perception Version 5 on to the separate servers you will need to ensure that the QPLA server can write any File Upload questions on to the QABS server.

Please refer to the relevant section for your operating system.

- [Setting up File Upload questions in Windows Server 2003](#)
- [Setting up File Upload questions in Windows Server 2008](#)

Now that Perception is installed follow the steps in the [Verifying your installation](#) sections.
Step 4: Setting up your Firewall rules (optional, only if you have a firewall between the servers)

If you have a firewall between your QPLA and QABS server you will need to ensure that certain web shares will need to be accessed through the firewall. These are:

- /<repository>_sys
- /<repository>_res
- /<repository>_togo

The contents of these web shares need to be accessed by the QPLA server or the participants browser. You will have to do this by creating a routing rule for an external address that points to these shares.

On the firewall create an external address that can access the /<repo>_res, /<repo>_sys and /<repo>_togo shares on the QABS box. Port 80 only.

You then need to ensure that the Repository server setting in Enterprise Manager points to the external firewall address you created. You can tighten security further by filtering out requests using the firewall that do not have the correct host header.

Once this has been done your installation of Perception Version 5 is ready to use. Refer to the section Configuring and verifying to ensure everything you require is configured and working.
Installing Perception on a multi-tiered Linux/Unix and Windows environment

It is possible to install the Questionmark Presentation Layer for Assessments on a Unix or Linux system running Apache. It may be desirable to install the presentation layer on a Unix/Linux operating system if you use a firewall and require Perception to be available outside of the firewall.

The following diagram represents the processes followed if your Unix/Linux environment is outside the firewall.

To install Perception in a multi-tiered environment with QPLA on a Unix/Linux server you will need to ensure that your system meets the minimum requirements as specified in the System Requirements section. You should also be familiar with Unix/Linux operating environment and comfortable carrying out configurations tasks.

It is recommended that you install Perception Server in a multi-tiered environment in the following order:

1. QABS
2. QPLA

The QPLA installation files for Linux/Unix environments are available as a separate download and can be obtained from the Download section of the Questionmark Website.

The installation steps for this setup will require administrators to work with both systems and will be beneficial if the administrator can access the systems simultaneously to speed up the installation and configuration process. The process involves carrying out the following steps on each server:
For instructions about the process of installing a multi-tiered installation on Linux/Windows, as depicted above, please refer to the following steps:

On the Windows Server:
- **Step 1:** Creating a user
- **Step 2:** Running the installer
- **Step 3:** Setting up the folder share

On the Linux Server:
- **Step 4:** Unzip the QPLA files
- **Step 5:** Configure the folder share for File Upload questions
- **Step 6:** Update the QPLA.ini file
- **Step 7:** Set the correct permissions for the files and folders
- **Step 8:** Connecting to QPLA for the first time
- **Step 9:** Updating the File Upload settings
- **Step 10:** Setting up your Firewall rules (optional, only if you have a firewall between the servers)

**Installing QABS**

This section describes how to install Perception and QABS on the Windows server when you are using Linux to host QPLA. You will need to go through the following steps:

- **Step 1:** Creating a user
- **Step 2:** Running the installer
- **Step 3:** Setting up the folder share

**Step 1: Creating a new user**

The following section describes how to create a new user in Windows. You need to create a new user for your installation of Perception that can be used by Linux to communicate with the Windows machine and provide access to certain files and folders. Once the user has been created you will be using it later in **Step 3:** Setting up the folder share and installing QPLA on Linux.

To create a user in Windows:

1. Click **Start | Administrative Tools | Computer Management**
2. From the **System Tools** list click **Local Users and Groups | Users**
3. Click **New User...** from the **Action** menu
4. Enter a user name and password (these will be needed later)
5. Uncheck the **User must change password at next logon** check-box
6. Check the **Password never expires** check-box
7. Click **Create**

8. Click **Close** to finish creating the user

**Step 2: Running the installer**

The install application will guide you through each step in the installation process, prompting you to specify your preferences at each stage. Copy the installation application to the server and follow the steps below.

The install application will guide you through each step in the installation process, prompting you to specify your preferences at each stage. You must be logged in to Windows as a **local system Administrator**. If you do not have these privileges Perception Server will not install correctly. Alternatively, if you know the administrator user name and password but are not logged in as that user you can right click on the install application and select **Run As Administrator**. You will be prompted to enter the username and password of a valid administrative user before being able to continue.
To install QABS:

1. Launch the installer application as an administrative user, see above for details.
2. Select **Custom** from the **Setup Type** window
3. Select the **Install everything except the Questionmark Presentation Layer for Assessments** option
4. Determine the location of where you want to install **Perception Server** (system files) and the **Repository files** by entering the information into the appropriate text-boxes.
5. In the Perception Server Root window choose the required setting

The settings include:

- **User Defined** if you intend for Perception to be accessed through a defined URL. Enter the URL in the appropriate text-box. For example, www.mycompany.com

- **This Computer** if the users will be using the computer name as the URL to access Perception

If you are intending to access the Perception Server using an IP address you must select the **User Defined** setting and enter the IP address in the text-box. Failure to do so will cause certain functions in Perception to work incorrectly. For example:

- File upload questions will not work correctly, by not allowing participants to upload answers
- Links to reports that a participant has access to will not work

6. In the QPLA Server Location window you will need to enter the URL used to access the QPLA server. This will be the server name of the Linux machine you are using
The QPLA Server Location can be:

- A define URL that is used by the QPLA server. For example, www.qpla.mycompany.com
- The computer name or IP address of the QPLA server

7. In the Installation Options window you will need to define which installation options you want to enable.

The installation options include:

- Whether you want the installer to automatically create the virtual directories or not. For further information about the virtual directories created and required by Perception, please refer to the Creating your own virtual directories section
- Whether you want the authors connecting to the Shared Repository through Authoring Manager to automatically be given the chance to upgrade to the latest version of Authoring Manager or not.

8. Follow the on screen instructions to complete the installation on this server

9. Launch the Shared Repository Manager and follow the instruction in the Creating a repository section to create a shared repository. Once you have setup your repository return here to complete the following steps starting at Step 3: Setting up the folder share.

**Step 3: Setting up the folder share**

Once you have created your repository you will need to create a file share for the File Upload questions. The File Upload questions allow a participant to upload a file as part of an answer to a question. You will need to create a file share on your Windows machines that the QPLA application installed on Linux can write files to. If you installed Perception to the default location the File Upload folder will be in the following location, otherwise please check where you installed the Repository Support files:

C:\Perception5\Repositories\shared\<MyRepository>
Where `<MyRepository>` is the name of your repository.

In this folder a `fileuploads` folder will exist.

To create a file share for this folder follow the instructions below for your operating system:

<table>
<thead>
<tr>
<th>Windows XP/Windows Server 2003</th>
<th>Windows Vista / 7 or Windows Server 2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Right click on the <code>fileuploads</code> folder and select <strong>Sharing and Security</strong></td>
<td>1. Right click on the <code>fileuploads</code> folder and select <strong>Share</strong></td>
</tr>
<tr>
<td>2. Select the <strong>Sharing</strong> tab</td>
<td>2. Enter the name of the user you created in <strong>Step 1: Creating a user</strong> and click <strong>Add</strong></td>
</tr>
<tr>
<td>3. Select the <strong>Share this folder</strong> option button</td>
<td>3. For user you just added select the <strong>Permission Level</strong> drop-down list and select <strong>Co-owner</strong></td>
</tr>
<tr>
<td>4. Enter <code>fileuploads</code> in the <strong>Share name</strong></td>
<td>4. Click <strong>Share</strong> followed by <strong>Done</strong></td>
</tr>
<tr>
<td>5. Select <strong>Maximum allowed</strong> from the <strong>User limit</strong> option buttons</td>
<td></td>
</tr>
<tr>
<td>6. Click <strong>Permissions</strong></td>
<td></td>
</tr>
<tr>
<td>7. Click <strong>Add</strong> followed by <strong>Advanced</strong></td>
<td></td>
</tr>
<tr>
<td>8. Click <strong>Locations</strong> and select the name of the computer</td>
<td></td>
</tr>
<tr>
<td>9. Click <strong>OK</strong></td>
<td></td>
</tr>
<tr>
<td>10. Click <strong>Find Now</strong> and scroll down and select the user you created in <strong>Step 1: Creating a user</strong></td>
<td></td>
</tr>
<tr>
<td>11. Click <strong>OK</strong> followed by <strong>OK</strong> again</td>
<td></td>
</tr>
<tr>
<td>12. Under the <strong>Allow</strong> column of the <strong>Permissions for</strong> section place a tick in the <strong>Full Control</strong> check-box</td>
<td></td>
</tr>
<tr>
<td>13. Click <strong>OK</strong></td>
<td></td>
</tr>
<tr>
<td>14. Select the <strong>Security</strong> tab</td>
<td></td>
</tr>
<tr>
<td>15. Select the user you just added and click the <strong>Full Control</strong> check-box in the <strong>Allow</strong> column</td>
<td></td>
</tr>
<tr>
<td>16. Click <strong>OK</strong> to make the changes</td>
<td></td>
</tr>
</tbody>
</table>

**Installing QPLA on Linux**

To install the QPLA portion of Perception Version 5 in a Linux environment you will need to:

- **Step 4: Unzip the QPLA files**
- **Step 5: Configure the folder share for File Upload questions**
- **Step 6: Update the QPLA.ini file**
- **Step 7: Set the correct permissions for the files and folders**
- **Step 8: Connecting to QPLA for the first time**
- **Step 9: Updating the File Upload settings**

Before carrying out any of the instructions below you should ensure that Linux is setup in accordance to the information in the **Configuring your server** chapter in this guide.
**Step 4: Unzipping QPLA**

You can download the QPLA zip from the My Downloads section of the Questionmark website. Once downloaded you will need to unzip it to your web server folder. The defaults for this are:

- Ubuntu Server - /var/www/
- RedHat Enterprise Linux - /var/www/html/
- SUSe Linux Enterprise - /srv/www/htdocs/

To unzip QPLA you will need to use a root user and the following command:

- `unzip qpla-5.x.x.x.zip /directory`

Where `x` is the version that matches your Perception installation and `/directory` is the correct web server folder for your installation of Linux.

You may need to install a file extraction application, like unzip, for your Linux server before being able to unzip the files as indicated above. You can install the unzip application using something similar to:

- `apt-get install unzip`
- `yum unzip`

This will depend on the Linux distribution you are using.

**Step 5: Mounting the folder share**

The following section describes how to configure and mount the folder share for the File Upload question type in Linux. The folder share being referred to, is the folder share you created in **Step 3: Setting up the folder share** section above. The following instructions assume you have installed the necessary extension as described in the section **Configuring your server** and you have logged in with *Root* privileges or similar.

Once mounted the file share will act like a new disk drive. Follow the instructions below to mount your file share:

1. Using the Terminal navigate to and edit the `/etc/hosts` file using your preferred editor
2. In the hosts file enter the IP address of your Windows server followed by the host name. For example:
   
   192.168.10.156 PerceptionServer

   Where *PerceptionServer* is the name of the computer on which you installed *Perception Server and QABS*.

3. Now you will need to create a mount point for your file share. You can do this by entering the following:

   `mkdir -p /mnt/fileuploads`

   Where *fileuploads* is the file share you created in **Step 3: Setting up the folder share**. This mount needs to be in the root section of the drive and should be the same as you identify in the QPLA.ini file below.

4. Enter the following to associate the mount point you created with the file share:

   - **Ubuntu Server**
     
     `mount -t smbfs -o username=<username>,password=<password> //<PerceptionServer>/fileuploads /mnt/fileuploads`

   - **RedHat Enterprise Linux** and **SUSe Linux Enterprise**
     
     `mount -t cifs -o username=<username>,password=<password> //<PerceptionServer>/fileuploads /mnt/fileuploads`
Where:

<username> and <password> are the details you created in Step 1: Creating a new user

<PerceptionServer> is the name of your Perception Server as recorded in the hosts file

The fileuploads folder on your Windows machine has now been shared and mounted with Linux.

This method of mounting a drive is not permanent in Linux. You will need to carry out the above step each time you restart the Linux server or you will have to setup Linux so that it automatically mounts the folder each time it is restarted. How this is accomplish depends on the version of Linux you are using. For further information please refer to the documentation that accompanies your installation of Linux and refer to the following types of information:

- Mounts
- /etc/fstab

Step 6: Updating the QPLA.ini file

Once QPLA has been unzipped, navigating to your web server folder should provide you with the following files and folders:

Folders:
- /Perception5
- /Perception5/cache
- /Perception5/logs
- /Perception5/runtime
- /Perception5/source
- /Perception5/system

Files:
- /Perception5/QPLA.ini
- /Perception5/QPLA_Default.ini

The QPLA.ini file will need to be updated to ensure that the correct locations and paths are available. This will ensure that QPLA knows where the rest of the Perception Server is (as installed above). You can update the QPLA.ini file using any text editor program including, vi or gedit.

To edit qpla.ini you will need to use the root user (or other administrator with similar permissions) and enter something similar to:

```
sudo vi /var/www/Perception5/QPLA.ini
```

Where:
- You can use vi or another editor of preference
- /var/www/ is the web server folder for your installation of Linux

To update the QPLA.ini file locate the following settings:

- messageServiceURL=http://127.0.0.1/qabs/AssessmentDeliveryService.asmx

This will need to be changed to point to the Perception Server you setup above. Enter the IP address or a valid domain name for the Perception Server.
Where `<myrepository>` is your repository name and the file is located on a **Network Attached Storage** (i.e. Load Balancing) or a shared network drive on your Perception Server at C:\Perception5\Repositories\Shared\<myrepository>\fileuploads

- **cachePath=C:\Perception5\server\cache**

  This will need to be changed to the correct path on your Linux server. For example, /var/www/Perception5/cache

- **logDirectory=C:\Perception5\server\logs**

  This will need to be changed to the correct path on your Linux server. For example, /var/www/Perception5/logs

### Step 7: Setting the correct permissions

With the QPLA files unzipped and the QPLA.ini file updated you now have to make sure that the QPLA files and folders have the correct permissions.

Linux is case sensitive and care should be taken when referencing folders in Linux

To do this type you will need to use the relative features for your version of Linux. The following are the commands needed for Ubuntu Server and they need to be run with a user who has sufficient privileges:

```bash
chgrp -R www-data /var/www/Perception5
chown -R www-data /var/www/Perception5
chmod g=rwx /var/www/Perception5/logs
chmod g=rwx /var/www/Perception5/cache
chmod -R g=rx /var/www/Perception5/runtime/javascript
```

The commands for the other distributions of Linux are similar. However, you will need to reference the QPLA files in their alternative web server folders. For example:

- In RedHat use `/var/www/html/...`
- In SUSE use `/srv/www/htdocs/...`

### Step 8: Connecting to QPLA for the first time

With all the setting applied you will be able to navigate to the following locations on your Linux server and see the participant login screens.


Doing this will allow the QABS server to successfully load the remaining settings in to the QPLA.ini file.

### Step 9: Updating the File Upload settings

Once the above steps have been done you will need to update the File Upload folder setting for the File Upload question type. You can update this setting by logging in to Enterprise Manager and changing these on the **Server Settings** page.

To access Enterprise Manager for a default installation, navigate to the following address:
Where <QABS_SERVER> is the domain or computer name where you installed the Windows installer in Step 2: Running the installer

http://<QABS_SERVER>/EM5/Login.asp

Once the page has loaded use the default administrative user and password to log in and complete the following steps:

1. Navigate to the Server Settings page by clicking System Administration | Server Management | Server Settings

2. Locate the File Upload folder setting in the Questionmark Presentation Layer for Assessments section of the page

   There are two File Upload folder settings on the Server Settings page. The first File Upload folder setting in the Folder section of the page is for use by the Scoring Tool. It does not need to be changed for File Upload questions to work. Only the second File Upload folder setting in the Questionmark Presentation Layer for Assessments section should be changed to point to the mount on your Linux machine.

3. Change this to something similar to /mnt/fileuploads. As created in Step 5: Mounting the folder share section.

4. Click the Save and Exit button

**Step 10: Setting up your Firewall rules (optional, only if you have a firewall between the servers)**

If you have a firewall between your QPLA and QABS server you will need to ensure that certain web shares will need to be accessed through the firewall. These are:

- /<repository>_sys
- /<repository>_res
- /<repository>_togo

The contents of these web shares need to be accessed by the QPLA server or the participants browser. You will have to do this by creating a routing rule for an external address that points to these shares.
You then need to ensure that the Repository server setting in Enterprise Manager points to the external firewall address you created. You can tighten security further by filtering out requests using the firewall that do not have the correct host header.

Once this has been done your installation of Perception Version 5 is ready to use. Refer to the section Configuring and verifying to ensure everything you require is configured and working.
Creating a repository

Perception Server uses shared repositories. Once you have set up your database, you will need to create a new shared repository. To do so, follow the procedure below.

To create a repository:

1. On your Perception server, open **Shared Repository Manager**

   To open Shared Repository Manager, click **Start | All Programs | Perception Server 5 | Questionmark | Shared Repository Manager**. If you are using Windows Server 2008 or Windows Server 2008 R2, you will need to right click on the Shared Repository Manager icon and select Run as administrator. You will be asked to confirm the action and may be required to enter an administrator password.

2. Click **Add New Repository...** in the **Shared Repositories** menu

   ![Shared Repositories](image)

   The **Repository Creation Wizard** is displayed

3. Click **Next >**

4. Enter a name for your repository in the Repository name text box

5. Select the type of database you are using from the **Database type** drop-down list

6. If you are installing **Perception Version 5.2** you can also select the language you would like your reports to appear in from the **Language for standard reports** drop-down and click **Next**.
7. Enter an **Initial topic name** and **Initial assessment folder** name and click **Next >**

The **Initial topic name** is the topic at the top of the topic hierarchy, and is also called the root topic. The **Initial assessment folder** is the assessment folder at the top of the assessment folder hierarchy, and is also called the root folder.

8. If you wish to enable security, ensure that the **Check to enable security in the new repository** box is ticked and click **Next**. We recommend that you enable security. If you are setting up a new repository on your database security is enabled by default and cannot be deselected.

9. The following option will require you to fill in your database details:
   - If you selected SQL Server or Oracle as your database type, you should see the following screen:
To continue:

- Select the **Database DSN** (Database Source Name) of your database from the drop-down list. You must have already created a blank SQL Server or Oracle database and setup an ODBC connection to it, otherwise the DSN name will not appear in the list. (Refer to **Database setup** for instructions if you have not already done so.)

- Tick the **Check to run database scripts** check-box as this is required to create the Perception tables in your database.

- Tick the **Check to enable question searching capability** check-box if you want authors to be able to use the Question Search facility in Authoring Manager. Ensure that OracleText has been installed if you are using an Oracle database or Full Text indexing has been installed and configured for the database if you are using SQL Server. Please refer to the documentation that accompanied your database server for more information about how to install and configure the necessary options.

- If you will be importing data from Perception version 3 tick **Check to import from V3**. Otherwise leave the check box un-checked. If the data you will be importing from Perception version 3 contains Japanese data (characters) or similar place a check in the **Convert V3 Japanese data on import** check-box.

- If you select SQL Express you will be asked to confirm the **Instance name** (the default is **SQLExpress**) and the **sa logon password** (as defined during the installation of SQL Server 2005/2008 Express).

To continue:

- Tick the **Check to enable question searching capability** check-box if you want authors to be able to use the Question Search facility in Authoring Manager. With SQL Server 2005/2008 Express you will need to have installed the Advanced Services edition.
• If you will be importing data from Perception version 3 tick **Check to import from V3.** Otherwise leave the check box un-checked. If the data you will be importing from Perception version 3 contains Japanese data (characters) or similar place a check in the **Convert V3 Japanese data on import** check-box.

• Once the above options have been determined, click **Next** and skip to step 11.

10. Click **Next**

11. You should now be presented with either of the following screens depending on the database server you are using:

   • **SQL Server**

   ![SQL Server Login](image)

   You will need to enter the correct details for the SQL Server user you assigned to the database. To check you are logging into the correct database you created earlier, click **Options >>**

   Once the details have been entered click **OK**

   • **Oracle**

   ![Oracle ODBC Driver Configuration](image)
You will need to enter the correct details you assigned to the Oracle database, to ensure that the ODBC connection can successfully be made (if this dialogue box does not automatically appear you can access it by clicking the Change Login Details button).

Once the details have been entered click OK.

12. Confirm the repository creation process by clicking Next. The repository will be created.
13. Click Finish to close the Repository Creation Wizard. A warning screen will be displayed.

14. Click Yes to set the shared repository to be accessed by authorized users of Enterprise Manager as well as participants.

If you click No the shared repository will not be set to be accessed by Perception Server and Enterprise Manager and all participant-facing software will not work.

The shared repository has now been created. The Configure Perception Server window will be displayed to allow you to configure the repository and Perception to work together. To configure the two:

1. Specify the Perception Server Application Folder. Either accept the default location or if you installed Perception to a different location click Browse to specify it.
2. The Web Access box displays the default names for the Resources Web Share and Content Web Share. Either accept the default name, or enter your own.
The System Web Share is only applicable if you have installed Perception on a multi-tiered setup as described in the section Installing a multi-tiered environment. The default web share as created by the installation is MyRepository_sys. This web share allows QPLA to access the necessary files on the QABS machine in a multi-tiered environment.

3. If you will be using Questionmark To Go or QMWISe for 3rd party applications to communicate with Perception place a check in the Configure this feature check-box and update the QMWISe URL so that it points to the QMWISe web share on your Perception server. Click Test to set and test the QMWISe URL setting.

4. To configure QMWISe fully you will also need to create a unique 8 digit Trusted Key that Perception can use to verify any communication between Perception and your 3rd party applications. For further information about Trusted Keys and QMWISe, please refer to the QMWISe API Guide.

5. Set the Web Share you would like to use for Questionmark to Go.
6. Click OK

7. **A Configuration Server Notice** will be displayed confirming that the configuration file has been successfully modified, click OK to continue.

8. The repository has now been created and will appear in the Shared Repository Manager.

Once you have created your repository you should **configure and verify** your Perception server is working as expected.
Configuring and verifying your installation

Once Perception Server has been installed you will need to configure and verify that it is working. This section provides information on how to do that and is split into the following sections:

- Configuring
- Verifying
- What’s next?

Please refer to each section for further information.

Configuring

You will need to check the configuration of your Perception installation. This is particularly true if you have setup a multi-tiered environment or you are intending to use some of the advanced features of Perception.

To check the configuration, navigate to the following address:

Where PerceptionServer is the address of the Perception server (not the QPLA server if you have installed in a multi-tiered environment).

Login with the System Administrator user name and password.

To check your configuration navigate to System Administration | Server Management | Server Settings.

Once in the Server Settings page you should check the following settings are correct in accordance with how you have setup Perception and what functionality you want is enabled:

<table>
<thead>
<tr>
<th>Settings</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>QPLA Server</td>
<td>If you installed in a multi-tiered environment you should check that this setting points to the server where QPLA is installed. For example;</td>
</tr>
<tr>
<td></td>
<td>• <a href="http://MyQPLA">http://MyQPLA</a></td>
</tr>
<tr>
<td></td>
<td>Where MyQPLA is the server name of the QPLA server. This can also be an IP address provided you have decided to use an IP address for participants to access Perception.</td>
</tr>
<tr>
<td>Web Server settings</td>
<td>If you have decided to alter any of the default web shares the corresponding web shares needs to be added to the virtual directory settings.</td>
</tr>
<tr>
<td>Cache and Clean-Up settings</td>
<td>There are numerous ways of setting up Perception, the following are settings you should check:</td>
</tr>
<tr>
<td></td>
<td>• Assessment Cache Block and its duration</td>
</tr>
</tbody>
</table>
**Settings**

- Question Block cache and its duration
- Auto Clean-Up values for progress records

**Enterprise Manager settings**

You should check the following setting is setup according to your requirements:

External entry to Enterprise Manager - Enable or disable Enterprise Manager from being accessed externally

---

**Verifying**

You can verify that Perception is working correctly by attempting to do the following:

- [Log in to Perception](#)
- [Run Enterprise Manager](#)
- [Run Authoring Manager](#)

If you can run these three applications, Perception Server is working correctly and the installation process is complete. Refer to the [Troubleshooting](#) section if you encounter any difficulties.

---

**Logging in to Perception**

If you have created Web shares according to the instructions given in this guide, and your server is www.example.com, the URL to open.php will be:

- www.example.com/perception5/open.php

Where **www.example.com** is the name of your server.

Type this in to your browser. You should see a log-in screen that asks for your name and group details.

Enter a name and click **Enter** to log in. Entering a **Group** is not required.
If you receive an error 50201 and you have installed in a multi-tiered or Load Balanced environment you should ensure that the machines are set to the same time. If the machines have different times this will cause a time-out to occur because all the requests and responses between the machines have a time stamp to ensure the data is valid. For more information, please refer to the Troubleshooting section in the Appendix.

Running Enterprise Manager

If you have created Web shares according to the instructions given, you can log in to Enterprise Manager with the following URL:

http://www.example.com/em5/login.asp

(Where www.example.com is the name of your server.)

You can use the default name Manager and password Secret, but remember that you should change these as soon as possible. Refer to the Enterprise Manager Help for instructions on how to do change password details.

If you encounter errors when trying to access Enterprise Manager, please refer to the Troubleshooting section in the Appendix.

Running Authoring Manager

If you encounter any difficulties, refer to the Authoring Manager Help for information on how to work with shared repositories.

What's next?

Once you have configured and verified your installation you should consider:

- Removing the info.php files to ensure no one can view information about your server or installation. For more information please refer to the following Knowledge Base:
  
  How can I remove the info.php file to ensure maximum security?

- Securing the communications between the outside facing tiers. For further information, please refer to the Securing communication to QABS section.
Securing communication to QABS

Now that Perception has been successfully installed and setup. You should secure the communications coming to the Questionmark Assessment Business Services tier. This should be secured to ensure that no malformed messages can be sent to Perception to be processed.

The recommended way of securing communication to QABS is to:

- Limit and filter the information received by QABS
- Only accept information from the current machine (if installed on a single server), or the machine(s) where the Questionmark Presentation Layer for Assessments (QPLA) is installed (if deployed in a multi-tiered setup).

How you secure the communication will depend on which operating system you have installed Perception Server on. For instructions about securing communication, please refer to the following Knowledge Base articles and complete the steps on the machine where QABS has been installed:

- **How can I secure access to the QABS virtual directory using IIS 6?**

- **How can I secure access to the QABS virtual directory using IIS 7?**

Once your installation is working correctly, you may want to configure your Perception Server to take advantage of more advanced functionality. For more information on the configuration options available, please refer to the **Advanced configuration options** chapter.
Licensing Perception

When you install Perception Server, a license file (.qmlicense) is included that will allow you to use the product for evaluation purposes for up to 14 days. If you wish to continue using Perception after this time, you will need to obtain a valid license file. This can be a permanent license if you have purchased the software, or an extended evaluation license if you wish to continue evaluating the product.

Licenses are issued by Questionmark and are created individually for each installation.

If your license has expired, or is nearing its expiration period, you can contact Questionmark Customer Services to obtain an extended evaluation license. Once this has been done, you can download the extended evaluation license file by using Enterprise Manager. Instructions on how to do this are provided below.

If your license is permanent, you can follow a simple activation procedure which identifies your license with your Perception Server. Refer to Activating your license file for instructions.

If you have any difficulty downloading or activating your license, please contact our Technical Support Team. Contact details are provided in Contacting Questionmark.

This section covers the various licensing requirements for Perception. It includes information about:

- How to download a license file
- How to activate a license file
Downloading a license

To download a license file you must be the Root Manager or Senior Administrator on your Perception system. There are two methods for downloading a license file. These are:

- **Downloading a new or extended evaluation license file**
- **Manually retrieving a license if your Perception system does not have access to the Internet**

Downloading a new or extended evaluation license file

To download a new or extended evaluation license:

1. Log in to Enterprise Manager as the Root Manager user
   - If you have not yet changed them, use the default name **Manager** and the password **Secret** to log in.
2. Click **Update License**
3. Click **Download New License**
4. The Questionmark Communities login screen is displayed
5. Log in to Questionmark Communities. If you have not yet registered for a Communities account, click **Register**
   - Questionmark Communities is the system that identifies you with Questionmark, and you use the same login details as you would normally use to download software and access the Product Support site.
   - If this screen is not displayed, Enterprise Manager was unable to download the license file from the Questionmark Licensing Server. Refer to **Manually retrieving a License**.
   - If you:
     - Are associated with more than one possible license to download because your organization has more than one license, you are given a choice of which license to download. Please
ensure that you download the correct license. Contact your System Administrator if you are not sure about which license to download.

- Are not associated with an appropriate license, a warning message will be displayed and Questionmark will contact you to discuss an extension license. You can also contact Questionmark directly, or associate yourself with a license by using Authoring Manager if you already know the license ID.

6. Details of the replacement license are displayed. If you are satisfied that you want to download the license file, click **Proceed**

A replacement license file will be downloaded to the Perception Server license file directory, and the existing license file will be replaced. The license applies to all parts of Perception Server, including:

- The participant-facing software
- The Shared Repository Manager
- The Shared Repository Service
- QMWISE

7. Activate your license file. For instructions on how to do this, refer to **Activating your license file**

**Manually retrieving a license**

If your server does not have a connection to the Internet, then Enterprise Manager isn't able to download the license file directly to the server. In this case, you see a screen similar to the one below:

---

**Update license**

**Cannot connect to Questionmark Licensing Server**

Please select one of the following options.

- ![Send an email to Questionmark Customer Service to request a license file.](Image)
- ![Paste in license details received by email from Questionmark in the box below.](Image)

You can:

- **Send an email to Questionmark to ask for your license file to be emailed to you**

To do this:
1. Click **Send an email to Questionmark to ask for your license file**
2. Click **Proceed**

   Your Email application will start and, if you have an active email service, you can send the email. Questionmark will then email your license file back to you.

   If you don’t have an active email service on your server, you can send an email message using another PC to licensing@questionmark.com. Include any relevant details in your email. Questionmark will reply with an email with an attached license file. You should then save the license file to the `Program Files\Questionmark\Perception5\server` folder.

- **Paste in the license file that has been emailed to you**

  To do this:
  1. Click **Paste in license details received by email from Questionmark in the box below**
  2. Locate and open the email that Questionmark has sent
  3. Locate and copy the **entire** license file
  4. Paste the license file into the text box
  5. Click **Proceed**

The process of downloading your license file is complete. Now you need to activate your license file.

Proceed to the next section **Activating a license** file.
Activating your license file

Permanent license files need to be activated, otherwise Perception will not deliver assessments.

A license file will only work with the particular Perception Server it was issued for. The Perception Server is identified by:

- The directory in which session.php is held
- The MAC (Media Access Control) address of the hardware

If any of these change, you will need to re-activate your license file. To do so, you must first deactivate your license file and then reactivate it in the new location. If you don't deactivate your license file first, you will not be able to reactivate your license file and will need to contact Questionmark Technical Services for assistance.

You can activate a license for Tryout use, which allows a limited number of participants on a Tryout or Development server, or Production use, which gives you full license capabilities.

For Production licenses, you are only allowed a limited number of activations (often only one Tryout and one Production server), so please be careful not to activate a server inappropriately, or mistakenly activate a Tryout server as a Production server. If you activate a server in error, please contact Questionmark Technical Support for assistance in de-activating it.

There are two ways to activate a server:

- **Automatically using the Internet**
- **Manually using an activation file**

Automatically activating your license

The automatic approach to activating the license requires a connection to the Internet from your Perception Server.

⚠️ Before you can automatically activate your account you need to access session.php. The easiest way to do this is to navigate to the open login page for the participants in a web browser. A typical address for the open login page is:


  Where `<my_server>` is the name of your Perception

To automatically activate your license file:

1. Open Enterprise Manager
2. Click **Administration | Server Management**
3. Click **Update License**
4. Click **Activate Current License**
5. The Activate Servers screen is displayed.

<table>
<thead>
<tr>
<th>Machine Name</th>
<th>Questionmark Server ID</th>
<th>Activation Expiration</th>
<th>Activation Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>QAOWAO</td>
<td>0SU0UGSMDFG6OSJ</td>
<td>December 01, 2005</td>
<td>Unactivated</td>
</tr>
</tbody>
</table>

Activate Servers

Use the drop-down boxes to change the activation status of the servers on your system, then enter your Questionmark and click "Activate" to submit the changes.

Enter your Communities email address and password and click Activate. If successful, the success message will be displayed.

If this screen is not displayed, Enterprise Manager was unable to contact the server you are running Perception on. Refer to Manually activating a license file for an alternative method.

6. Select Tryout or Production from the Activation Status drop-down list, depending on the license file you want to activate.

7. Enter your Communities email address and password and click Activate. If successful, the success message will be displayed.

If this screen is not displayed, Enterprise Manager was unable to contact the server you are running Perception on. Refer to Manually activating a license file for an alternative method.
Manually activating a license file

If you don't have an Internet connection to the server you are running Perception on, and you are attempting to activate your license file, Enterprise Manager will display the Manual Activation screen.

You can manually activate your server license if your Perception server:

- Has an Email facility
- Is connected via a network to a PC that has an Email facility
- Can have the data transferred to or from it by floppy disk, CD, USB Flash drive or other medium, from a PC that has an Email facility.

To manually activate your server license:

1. **Click here to download the Activation Request File**
   
The File Download screen is displayed.

   ![File Download](image)

   Do you want to save this file?

   - Name: Request.qmActivateR
     - Type: Unknown File Type, 469 bytes
     - From: localhost

   - Save
   - Cancel

   While files from the Internet can be useful, some files can potentially harm your computer. If you do not trust the source, do not save this file. What's the risk?
2. Click **Save** to store the Activation File and choose a convenient location to keep it
3. Click **Save**
   
The Activation file, request.qmActivateR, will download to the selected location
4. Click **Close**
5. On the Manual Activation screen, click **click here to automatically create the email message to be sent to Questionmark**

   In your Email messaging application, the New Message screen is displayed:

   ![New Message Screen](image)

   6. Click **Attach** (or equivalent command) and attach the request.qmActivateR file
   7. Click **Send**

       Questionmark will receive and process the Activation Request email you sent, and reply with an email that has an activation file attached

   To activate your server license:
   1. Open the email from Questionmark
2. Right-click on the attached Activation file (for example, Customer.qmActivate)
3. Click **Save As**

   Navigate to a convenient location on the machine where your Perception installation is located

4. Click **Save** to store the Perception Activation file on the machine where your Perception installation is located,

5. In Enterprise Manager, click **Update License**

6. Click **Activate Current License**

   You then see a screen similar to the one below, which displays the Machine Name, Questionmark Server ID, Activation Expiration date and Activation Status (which shows that the server is Unactivated):
If you are running Perception on a load balanced cluster, you will see two or more machines listed.

7. Click **Browse**

8. Navigate to and select your Activation file (for example, Customer.qmActivate)
9. Click **Open**

10. Click **Finish**

    Your license is now activated.

If you have any difficulty downloading or activating your license, please contact our technical support team for assistance.
Upgrading Perception Server

Before upgrading to Perception Version 5.2 it is recommended that you refer to the following guide for advice on how to plan and deploy the upgrade process.

Best Practice Guide for Upgrading to Perception 5

This section covers the steps for upgrading the following environments to Perception Version 5.2:

- Perception Version 3.x
- Perception Version 4.x
- Perception Version 5.1
- Perception Version 5.1 in a multi-tiered environment
Upgrading from version 3

Questionmark have produced comprehensive guidelines and instructions on how to upgrade from version 3 to version 5. Refer to the following Knowledge Base article on the Questionmark Product Support Web site for more information:

- What are the key issues in migrating from version 3 to version 5 of Perception?
Upgrading from Version 4

Perception Server 5, does not upgrade Perception Version 4 directly. Instead, Perception Version 5 installs alongside it. This ensures that if there are any problems with the upgrade it is possible to easily switch back to Perception Version 4. However, prior to running the installer you should ensure that the machine you are upgrading still meets the system requirements for Perception Version 5.

Most common requirements that need to be installed for an upgrade include:

- **.NET 2.0 Framework**

  Perception Version 5 requires the .NET 2.0 Framework to be installed on the application server, and will not work with other .NET Framework versions. Provided you have .NET 2.0 Framework installed, you can also have .NET Framework version 1.1 and the .NET 3.0/3.5 Framework installed.

  If you are using Windows Server 2003 R2 or Windows Server 2008 the .NET 2.0 Framework is installed by default. However, If you run the installer without first installing the .NET 2.0 Framework on Windows XP or Windows Server 2003 a choice will be offered to the user to download and install the .NET 2.0 Framework components. This download facility requires an Internet connection.

  You can check what versions of the .NET Framework are installed by checking in the following folder on your server:

  `C:\Windows\Microsoft.NET\Framework`

  Each installed version of the .NET Framework will have a corresponding folder.

- **PHP**

  PHP Version 5.2.5 or higher is required to allow the Presentation tier to function. The Presentation tier is the part of the application that renders questions and assessments in a usable form through a participant's web browser. PHP will need to be installed on the same server as Enterprise Manager if you are using a single server or the server dedicated to the Presentation tier in a multi-tiered setup. Questionmark have created a prerequisites installation package that contains the required PHP system files. This can be installed on the server or it is possible to use the PHP releases available at:

  [www.php.net](http://www.php.net)

  To find out more about installing PHP or the Questionmark prerequisites installer, please refer to:

  Installing PHP

Once the requirements have been fulfilled follow the instructions below to upgrade Perception from Version 4 to Version 5.

The recommended upgrade procedure is listed below:

- **Backup you repository**
- **Backup your license**
- **Run the installer**
- **Upgrade the repository**
- **Rolling back to Perception Version 4**
Backing up your repository

Perception Version 5 upgrades your existing repository so that it is compatible with the new features available. We recommend prior to running the Perception Server installer you take a backup of your existing repository so that you can restore it if you need to roll back to Perception Version 4. You will need to take a backup of the repository files and database.

Taking a backup of your database depends on what database server application you are running.

If using Oracle, the following methods are valid for backing-up an Oracle database:

- **Export/Import** - Exports are "logical" database backups in that they extract logical definitions and data from the database to a file
  
- **Cold or Off-line backups** - Shut the database down and backup ALL data, log, and control files
  
- **Hot or On-line backups** - If the database is available and in ARCHIVELOG mode, set the Tablespace into backup mode and backup the files. Also remember to backup the control files and archived redo log files
  
- **RMAN backups** - While the database is off-line or on-line, use the "rman" utility to backup the database

It is advisable to use more than one of these methods to backup your database. For example, if you choose to do an on-line database backup, also cover yourself by doing a database export. If your database is in ARCHIVELOG mode, you also need to backup archived log files. For further details, please refer to the documentation that accompanies Oracle.

It is recommended that any backup you make on Oracle using any of the methods described above is done so using the Perception Tablespace Schema Owner. This will ensure that errors do not occur while exporting or rolling back the information.

If using SQL Server, the following types of backups are available:

- **Full backup** - Makes a complete backup of your database
  
- **File backup** - Is useful when your database is so large that a full backup would take too long
  
- **Transaction log backup** - Creates a copy of all changes made to the database that are currently stored in the transaction log
  
- **Differential backup** - Stores all changes that have occurred to the database since the last full backup

For the purpose of upgrading a **Full backup** should be made of the database, as this will backup all aspects of the data including transaction logs and is the most likely to successfully restore. For further information about backing up an SQL Server database, please refer to the documentation that accompanies SQL Server.

It is recommended that a test be carried out on ALL backups so that the backup integrity can be verified. It is better to be safe than sorry.

Once the database has been backed up you will need to backup your repository files. Backing up your repository file means you will need to take a backup of the shared repository folder on your Perception server. The default location for the repository files is:

```
C:\Perception4
```

Take a backup of the repository files and folders using your preferred method. This may include copying them to a CD, USB device or a Backup tape device.
With the backup of the repository database and shared repository files now complete you can upgrade your Perception installation. If you need to revert to Perception Version 4 you can do so by using the backups you just created.

**Backing up your license**

It is recommended that you backup your Perception Version 4 license before attempting to upgrade. This will ensure that if you need to roll-back to Perception Version 4 you can do so quickly and easily. The license file is located in the following folder in a default installation of Perception Version 4:

```
C:\Program Files\Questionmark\Perception4\server\qmllicense
```

The license file ends with the extension `.qmllicense`. Locate this file and back it up to a secure location.

**Running the installer**

The following section describes the steps required to upgrade Perception from Version 4 to Version 5. The steps document the upgrading of Perception Version 4.4 to Version 5. However, upgrading any Perception Version 4 installation will be the same. The Perception Server install program is available from the Download area of the Questionmark web site.

To upgrade Perception from Version 4 to Version 5 complete the following steps:

1. Ensure you have installed PHP and the .NET 2.0 Framework
2. Double-click the Perception Version 5 installer
3. Enter the password to run the installer and click OK
4. The installer will detect if a previous Version 4 install of Perception exists, click Yes to upgrade the installation
5. Click Next >
6. To accept the End User License select the I accept the terms in the license agreement option button and click Next >
7. Select Typical and click Next
8. Choose an installation path for the Perception Version 5 system files
9. Leave the location of the **Repository Files** pointing towards your existing Perception Version 4 repository files. For example, `C:\Perception4`.

   **Warning:** Changing the **Install Repository Files To** folder will cause any resources or content linked to questions to break. This means that any images, media or other files used in a question will no longer be displayed when that question is used.

10. Click **Next**

11. If this server is to be accessed externally enter the valid URL for the web server by selecting the **User Defined** option box and entering the appropriate domain name in the text-box. Otherwise select **This Computer** and click **Next**.

   **Warning:** If you are intending to access the Perception Server using an IP address you must select the **User Defined** setting and enter the IP address in the text-box. Failure to do so will cause certain functions in Perception to work incorrectly. For example:
   - File upload questions will not work correctly, by not allowing participants to upload answers
   - Links to reports that a participant has access to will not work

12. Click **Install**

13. Click **OK** on the message relating to PHP

The Perception Version 5 application files will now install.

### Upgrading the repository

To use your Perception repository with Perception Version 5, you will need to upgrade your repository using the **Repository Upgrade Wizard** in Shared Repository Manager.
Before you upgrade your repository you may need to reconfigure your connection to your Perception database. You will have to do this if the Connection column in Shared Repository Manager reads 'No'. The following steps describe how to do this:

1. In the Shared Repository Manager select your repository
2. Click Configure Connection in the Shared Repositories menu
3. Select the Database DSN you use to connect to your Perception database from the drop-down list
4. Click Change Login Details and enter your password for connecting to the database
5. Click OK followed by OK again

Your connection to the database has now been re-established.

To upgrade your repository to the latest version complete the following steps:

1. On your Perception application server, open Shared Repository Manager (ensure you use the Version 5 Shared Repository Manager). Repositories that have not yet been upgraded are displayed in red.

<table>
<thead>
<tr>
<th>Shared Repositories</th>
<th>Enable</th>
<th>Security</th>
<th>Connect</th>
<th>Database Type</th>
<th>Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>MyRepository</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>SQL Server</td>
<td>4,4,4,0</td>
</tr>
</tbody>
</table>

2. Select the repository you want to upgrade.
3. Click Repository Upgrade Wizard...

4. Enter the administrator username and password
5. Click Stop IIS and SRS on this machine and click Next
6. Click Browse and locate the perceptionv4.ini file to copy the previous setting to the repository
7. Select the language of the templates used in Version 4. For example, if you have translated your templates into French (added buttons and instructions in French on the template) select French from the Languages drop-down list.
8. If you want to copy any of the Version 4 style sheet and template settings to the new Version 5 templates select the Yes option-button
9. Click Next
10. Click Start the IIS and SRS on this machine followed by Finish
Now that the repository has been upgraded you will need to configure Perception. To configure Perception click **Configure Server** in the **Management** menu. You will need to enter the root administrator username and password.

The **Configure Perception Server** window will now be displayed. Complete the following steps to finish configuring your repository:

1. Choose if you want to use the existing Virtual directories used by your previous Version 4 installation, or use virtual directories you've created yourself.

   If you have created your own virtual directories and you would like to use these enter them in the **Server Application Virtual Directories** section for each of the devices:

   ![Server Application Virtual Directories](image)

   You will have to manually ensure that these Virtual directories are pointing to the correct folder location. This can be achieved in Internet Information Services. If you want to use your existing Virtual directories leave them as they are. For more information on settings up the Virtual directories, please refer to the section **Creating your own virtual directories** in the **Advanced configuration options** chapter.

2. If you will be using QMWISe or Questionmark To Go you will need to enable this feature by placing a check in the **Configure this feature** check-box

3. Click **OK** to apply the settings

Once you have completed the Repository Upgrade Wizard, the Version of your repository will be displayed as:

<table>
<thead>
<tr>
<th>Shared Repositories</th>
<th>Enabled</th>
<th>Secured</th>
<th>Connected</th>
<th>Database Type</th>
<th>Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>MyRepository</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>SQL Server</td>
<td>5.0.1.0</td>
</tr>
</tbody>
</table>

For further details about how the upgrade works and for various upgrades to different configuration, please refer to the following guide:

- **Best Practice for Upgrading**
  

Once you have upgraded Perception and you are happy that it is functioning as expected you can uninstall Perception Version 4 from the server.

To uninstall Perception Version 4 complete the following steps:

1. On the server where Perception Server is installed, open the Control Panel and then the run **Add/Remove Programs**.

2. Select the entry for Perception Server and click **Change/Remove**.

3. Click **OK** to confirm that you want to uninstall **Perception Server Version 4**.

Perception Version 4 will now be uninstalled.
Rolling back to Perception Version 4

If for any reason you need to return to Perception Version 4, you can do this provided that you backed up your repository prior to the upgrade.

For instructions about how to roll back the upgrade, please refer to the following Knowledge Base article:

- How can I roll back to Perception Version 4 from Perception Version 5?

Rolling back your installation of Perception Version 4 will return it to the same state it was originally prior to the upgrade. This means that if the following were added after the upgrade they will no longer be available:

- Questions
- Assessments
- Participants
- Results

If you created new questions and assessments it is recommended that you export them as Qpacks prior to rolling back.
Upgrading from Perception Version 5.1 on a single server

If you are upgrading Perception from version 5.1 to version 5.2, you must:

- Restart your Perception Server
- Run the install program
- Run the Repository Upgrade Wizard

However, before you upgrade you should:

- Backup templates and other modified files

Backing up your templates and other modified files

Perception Version 5.2 adds several minor modification to the template and XSL files that were shipped with Version 5.1. If you have modified any of your templates, XSL or CSS files (If you created new templates, CSS or XSL files you will not need to back them up but it is recommended as good practice) you should create a backup of these so that you can re-apply the changes once Version 5.2 is installed. The following folders are updated/modified when upgrading from Version 5.1 to 5.2:

- C:\Perception5\Repositories\<MyRepository>\resources\system\css
- C:\Perception5\Repositories\<MyRepository>\system\defaults
- C:\Perception5\Repositories\<MyRepository>\system\devices
- C:\Perception5\Repositories\<MyRepository>\system\templates
- C:\Perception5\Repositories\<MyRepository>\system\xsl

Where <MyRepository> is the name of your shared repository

You should backup the content of any of the above folders if you have modified any templates or XSL files for your installation. These files will then need to be copied on top of the upgraded files or in the case of the CSS and XSL files any modifications you made will need to be reapplied to the upgraded files.

Restarting your Perception Server

You should restart your Perception Server before attempting an upgrade. This will ensure that no one is connected to your Perception instance using a Web browser or Authoring Manager and it ensures that the files being upgraded are not in use.

⚠ You will need to restart your Perception Server before attempting to upgrade from Perception Version 5.1. Not restarting your server prior to upgrading could cause the upgrade to fail due necessary files being in use at the time of upgrade.

Run the installer

Download the installer on to your Perception server running Version 5.1. You can download the latest version of Perception from the My Downloads page on the Questionmark web site.
The install application will guide you through each step in the upgrade process, prompting you to specify your preferences at each stage. You must be logged in to Windows as a **local system Administrator**. If you do not have these privileges Perception Server will not install correctly. Alternatively, if you know the administrator user name and password but are not logged in as that user you can right click on the install application and select **Run As Administrator**. You will be prompted to enter the username and password of a valid administrative user before being able to continue.

To upgrade to Perception Version 5.2:

1. Launch the installer
2. Enter the password for the installer. This password should have been sent to you by email. Please contact Questionmark if you have not received this email.
3. If a previous installation of Perception Version 5 is detected the following message will be displayed. Click **Yes** on the upgrade message if you have already restarted your server as indicated in the **Restarting your Perception Server** section above.
   
   If you have not restarted your server click **No**, exit the installer and restart your machine before attempting to carry out these instructions.
4. Click **Next >** to start the upgrade process and follow the on screen instructions
5. If you installed Perception Version 5.1 in a:
   - Single server environment select **Typical**
   - Multi-tiered environment select **Custom** and choose the specific part of Perception that is installed on the current server
6. Click Next >

7. Make sure the Install Questionmark Perception Server 5.2 to text-box points to the current location where Version 5.1 is installed. Select Browse to change this if you installed Perception Version 5.1 in a non-default location.

8. Make sure the Install Repository Files to text-box points to where your current Version 5.1 repository files are located. Select Browse to change this if you installed Perception Version 5.1 repository files to a non-default location or you previously upgraded from Perception Version 4.
9. Click Next to continue

10. Define the root URL used by the Perception Server by selecting **User Defined** and entering a valid domain name for the Perception Server or select **This Computer** if the server is connected to using the computer name.

11. Click **Install** to start the upgrade process.
12. Click OK on the PHP warning message

You may be asked to restart your computers to make all the necessary changes. We suggest that you upgrade your shared repository before restarting the machine.

**Upgrading the Shared Repository**

Once the installer has finished upgrading your files you will need to upgrade the shared repository to the latest version.

To do this launch the Shared Repository Manager if it was not already launched by the installer application and complete the following steps:

1. Select your shared repository that needs upgrading. This will be highlighted in RED

2. Click **Repository Upgrade Wizard...** in the **Management** menu

   ![Management Menu](image)

3. Enter the Perception administrator username and password. The Repository Upgrade Wizard will start click **Next >** to continue
4. Click the **Stop IIS and SRS on this machine** button and click **Next >**
5. The repository should now be upgraded
6. Once the repository is upgraded you will be asked to **Start IIS and SRS on this machine**, so do so by clicking the button
7. Click **Finish** to complete the upgrade

The Repository should now appear in Shared Repository Manager as:

<table>
<thead>
<tr>
<th>Shared Repositories</th>
<th>Enabled</th>
<th>Secured</th>
<th>Connected</th>
<th>Database Type</th>
<th>Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>MyRepository</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>SQL Server</td>
<td>5.2.0.1</td>
</tr>
</tbody>
</table>

Now that the repository has been upgraded you will need to ensure that the server is correctly configured. You can do this in the Shared Repository Manager by:

1. Selecting the repository you just upgraded
2. Clicking **Configure Server...** in the Management menu and entering your root system administrator username and password
3. This will open the Configure Perception Server window
Check that the **Perception Server Application Folder** is pointing to the correct installation path. The default is C:\Program Files\Questionmark\Perception5

4. Update the **Server Application Virtual directories** if you installed Perception Version 5.1 to custom virtual folders
5. Check that the **Questionmark to Go settings** are enabled and configured, if required
6. Click **OK** to make the changes

Your Perception Server should now be upgraded. Please refer to Configuring and verifying to check that it is working as expected.
Upgrading from Perception Version 5.1 in a multi-tiered environment

The following section provides details about how to upgrade your installation of Perception 5 if you have installed it in a multi-tiered environment in the following configurations:

<table>
<thead>
<tr>
<th>Configuration</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linux / Windows</td>
<td>Where the Questionmark Layer for Presentations is installed on a Linux server and the other Perception tiers are installed on a Windows server</td>
</tr>
<tr>
<td>Windows / Windows</td>
<td>Where QPLA is installed on one Windows server and the remaining Perception tiers are installed on another Windows server</td>
</tr>
</tbody>
</table>

This section provides details about how to install the updated version of:

- QPLA on Linux
- QPLA on Windows
- Perception business logic tier on Windows

Before carrying out any upgrade you should backup certain files and folders if you have customized the contents in any way. For more information, please refer to Backing up your template and other modified files below.

Once you have upgraded the necessary parts you will then be able to upgrade the shared repository manager to the latest version. For more information about this, please refer to the Upgrading Shared Repository section on the Upgrading from Perception Version 5.1 page.

Backing up your template and other modified files

Perception Version 5.2 adds several minor modification to the template and XSL files that were shipped with Version 5.1. If you have modified any of your templates, XSL or CSS files (If you created new templates, CSS or XSL files you will not need to back them up but it is recommended as good practice) you should create a backup of these so that you can re-apply the changes once Version 5.2 is installed. The following folders are updated/modified when upgrading from Version 5.1 to 5.2:

- C:\Perception5\Repositories\shared\<MyRepository>\resources\system\css
- C:\Perception5\Repositories\shared\<MyRepository>\system\defaults
- C:\Perception5\Repositories\shared\<MyRepository>\system\devices
- C:\Perception5\Repositories\shared\<MyRepository>\system\templates
- C:\Perception5\Repositories\shared\<MyRepository>\system\xsl

Where <MyRepository> is the name of your shared repository

You should backup the content of any of the above folders if you have modified any templates or XSL files for your installation. These files will then need to be copied on top of the upgraded files or in the case of the CSS and XSL files any modifications you made will need to be reapplied to the upgraded files.
**Upgrading QPLA on Linux**

Before you upgrade your QPLA installation on Linux it is recommended that you backup the QPLA.ini file stored in the web server folder of your Linux install. See below for the default locations of the web server folders for the supported versions of Linux.

The easiest way to backup your file and make sure that it is not overwritten during the upgrade is to rename the file. This can be done by using a command similar to the following as a root user from the *Perception5* folder in your web server folder:

```
mv QPLA.ini QPLA.ini.bak
```

You can download the latest QPLA zip from the My Downloads section of the [Questionmark](#) website. Once downloaded you will need to unzip it over the top of your existing content in the web server folder. The default for the web server folders are:

- Ubuntu Server - `/var/www/

- RedHat Enterprise Linux - `/var/www/html/

- SUSe Linux Enterprise - `/srv/www/htdocs/

To unzip QPLA you will need to use a *root user* and a command similar to the following:

```
unzip qpla-5.x.x.x.zip /directory
```

Where `x` is the latest version of the QPLA files and `/directory` is the correct web server folder for your installation of Linux.

You may need to install a file extraction application, like unzip, for your Linux server before being able to unzip the files as indicated above. You can install the unzip application using something similar to:

```
apt-get install unzip

yum unzip
```

This will depend on the Linux distribution you are using. You will be asked while unzipping the content of the QPLA zip if you want to replace the existing files, select **YES** or **ALL**.

Once you have unzipped the new files you will need to replace the QPLA.ini file with the backup you created earlier. The easiest way to do this is to rename the file using a similar method to how you renamed it earlier. This can be done by entering the following using a root user from the Perception5 folder in your web server folder:

```
mv QPLA.ini.bak QPLA.ini
```

Now you need to reapply the correct permissions to the various QPLA folders. To do this type you will need to use the relative features for your version of Linux. The following are the commands needed for Ubuntu Server and they need to be run with a user who has sufficient privileges:

```
chgrp -R www-data /var/www/Perception5

chown -R www-data /var/www/Perception5

chmod g=rwx /var/www/Perception5/logs

chmod g=rwx /var/www/Perception5/cache

chmod -R g=rx /var/www/Perception5/runtime/javascript
```

The commands for the other distributions of Linux are similar. However, you will need to reference the QPLA files in their alternative web server folders. For example:
In RedHat use /var/www/html/...
In SUSE use /srv/www/htdocs/...

With all the setting applied you will be able to navigate to the following locations on your Linux server and see the participant login screens using the latest version of QPLA.


Now that you have upgraded the QPLA files you should follow the steps for upgrading QABS and the other Perception components. Please refer to Upgrading Perception business logic tier on Windows for the next set of instructions.

### Upgrading QPLA on Windows

Download the installer on to your Perception server running Version 5.1. You can download the latest version of Perception from the My Downloads page on the Questionmark web site.

⚠️ You will need to restart your Perception Server before attempting to upgrade from Perception Version 5.1. Not restarting your server prior to upgrading could cause the upgrade to fail due necessary files being in use at the time of upgrade.

Once you have restarted your Perception Server you can upgrade it to Perception Version 5.2 by launching the installer and following the steps below.

The install application will guide you through each step in the upgrade process, prompting you to specify your preferences at each stage. You must be logged in to Windows as a **local system Administrator**. If you do not have these privileges Perception Server will not install correctly. Alternatively, if you know the administrator user name and password but are not logged in as that user you can right click on the install application and select **Run As Administrator**. You will be prompted to enter the username and password of a valid administrative user before being able to continue.
To upgrade to Perception Version 5.2:
1. Launch the installer
2. Enter the password for the installer. This password should have been sent to you by email. Please contact Questionmark if you have not received this email.
3. If a previous installation of Perception Version 5 is detected the following message will be displayed. Click Yes on the upgrade message if you have already restarted your server as indicated above.

![Upgrade Message]

If you have not restarted your server click No, exit the installer and restart your machine before attempting to carry out these instructions.
4. Click Next > to start the upgrade process and follow the on screen instructions
5. Select the Custom option button and click Next >
6. Select the Install only the Questionmark Presentation Layer for Assessments option and click Next >
7. Make sure the Install Questionmark Perception Server 5.2 to text-box points to the current location where Version 5.1 is installed. Select Browse to change this if you installed Perception Version 5.1 in a non-default location
8. Make sure the Working Directory text-box points to where your current Version 5.1 repository files are located. Select Browse to change this if you installed Perception Version 5.1 repository files to a non-default location or you previously upgraded from Perception Version 4 and click Next > to continue
9. In the QABS Server IP Address text-box insert the IP of the server where QABS is installed
10. In the QABS Virtual Directory Name text-box insert the name of the virtual directory used for QABS. The default is qabs.
11. Click Next >
12. In the Installation Options screen, you should select the following options depending on how you set up Perception originally:
   - If you allowed the installer to create the directories previously you should select the Yes, automatically create Virtual Directories and Application Pools option button.
   - If you created custom Virtual Directories select the No, I will configure IIS manually option and refer to the Creating your own virtual directories section.
13. Follow the on screen instructions to complete the installation on this server and click Install to start the upgrade process
14. Click OK on the PHP warning message

Now that you have upgraded the QPLA files you should follow the steps for upgrading QABS and the other Perception components. Please refer to Upgrading Perception business logic tier on Windows for the next set of instructions.
Upgrading Perception business logic tier on Windows

Download the installer on to your Perception server running Version 5.1. You can download the latest version of Perception from the My Downloads page on the Questionmark web site.

You will need to restart your Perception Server before attempting to upgrade from Perception Version 5.1. Not restarting your server prior to upgrading could cause the upgrade to fail due necessary files being in use at the time of upgrade.

Once you have restarted your Perception Server you can upgrade it to Perception Version 5.2 by launching the installer and following the steps below.

The install application will guide you through each step in the upgrade process, prompting you to specify your preferences at each stage. You must be logged in to Windows as a local system Administrator. If you do not have these privileges Perception Server will not install correctly. Alternatively, if you know the administrator user name and password but are not logged in as that user you can right click on the install application and select Run As Administrator. You will be prompted to enter the username and password of a valid administrative user before being able to continue.

To upgrade to Perception Version 5.2:

1. Launch the installer
2. Enter the password for the installer. This password should have been sent to you by email. Please contact Questionmark if you have not received this email.
3. If a previous installation of Perception Version 5 is detected the following message will be displayed. Click Yes on the upgrade message if you have already restarted your server as indicated above.
If you have not restarted your server click **No**, exit the installer and restart your machine before attempting to carry out these instructions.

4. Click **Next >** to start the upgrade process and follow the on screen instructions
5. Select the **Custom** option button and click **Next >**
6. Select the **Install everything except the Questionmark Presentation Layer for Assessments** option

7. Click **Next >**
8. Make sure the **Install Questionmark Perception Server 5.2** to text-box points to the current location where Version 5.1 is installed. Select **Browse** to change this if you installed Perception Version 5.1 in a non-default location
9. Make sure the **Install Repository Files to** text-box points to where your current Version 5.1 repository files are located. Select **Browse** to change this if you installed Perception Version 5.1 repository files to a non-default location or you previously upgraded from Perception Version 4
10. Click **Next >** to continue

11. Define the root URL used by the Perception Server by selecting **User Defined** and entering a valid domain name for the Perception Server or select **This Computer** if the server is connected to using the computer name and click **Next >**
12. In the **QPLA Server Location** window enter the URL used to access the QPLA server this should be the same as when you originally setup the previous version of Perception and click **Next >** to continue.

13. In the Installation Options screen, you should select the following options depending on how you set up Perception originally:
   - If you allowed the installer to create the directories previously you should select the **Yes, automatically create Virtual Directories and Application Pools** option button. If you created custom Virtual Directories select the **No, I will configure IIS manually** option and refer to the [Creating your own virtual directories](#) section.
   - Whether you want the authors connecting to the Shared Repository through Authoring Manager to automatically be given the chance to upgrade to the latest version of Authoring Manager or not.

14. Follow the on screen instructions to complete the installation on this server and click **Install** to start the upgrade process

15. Click **OK** on the PHP warning message

You may be asked to restart your computers to make all the necessary changes. We suggest that you upgrade your shared repository before restarting the machine.

Once you have upgraded the necessary parts you will then be able to upgrade the shared repository to the latest version. For more information about this, please refer to the [Upgrading the Shared Repository](#) section on the [Upgrading from Perception Version 5.1](#) page.

Your Perception Server should now be upgraded. Please refer to [Configuring and verifying](#) to check that it is working as expected.
Advanced configuration options

To ensure that Perception is installed correctly on specific system types or to get the best Performance out of Perception you may want to carry out the necessary advanced configuration options. The functionality you can configure is outlined in the following table.

<table>
<thead>
<tr>
<th>If you will be...</th>
<th>Then you need to...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Installing on a non-English operating system</td>
<td>Setup Perception Server to run on <a href="#">non-English operating system</a></td>
</tr>
<tr>
<td>Installing on a 64-Bit operating system</td>
<td>Ensure that the various components are configured to run in 32-bit emulation mode</td>
</tr>
<tr>
<td>Installing Perception on a locked down system</td>
<td>Check which <a href="#">access rights</a> are required for Perception</td>
</tr>
<tr>
<td>Load balancing Perception Server</td>
<td>Configure Perception to operate in a <a href="#">load balanced environment</a></td>
</tr>
<tr>
<td>Creating your own webshares</td>
<td>Manually create the web shares and assign them to the correct folders</td>
</tr>
<tr>
<td>Configuring E-Mail services</td>
<td>Configure your system to use <a href="#">email services</a></td>
</tr>
<tr>
<td>Running behind a firewall</td>
<td><a href="#">Configure Perception Server to run behind a firewall</a></td>
</tr>
<tr>
<td>Using SSL</td>
<td><a href="#">Configure your system to use SSL</a></td>
</tr>
<tr>
<td>Using IIS 7 you will need to set application pools to 'Classic' mode</td>
<td>Manually <a href="#">setting application pools to use 'Classic' mode</a></td>
</tr>
<tr>
<td>Using Windows authentication to access your repository</td>
<td>Configure Perception and your servers to use Windows authentication with your SQL Server 2005 database</td>
</tr>
<tr>
<td>Setting language codes for use with Translation Management System</td>
<td><a href="#">Configure the language codes</a> you want to include for translating content</td>
</tr>
<tr>
<td>Installing multiple copies of Perception on a single server</td>
<td>You will need to manually copy folders and configure them correctly to <a href="#">install Perception multiple times</a></td>
</tr>
<tr>
<td>Installing Perception Server on Windows Server 2003 and require optimum performance</td>
<td>Perform some <a href="#">additional Windows Server 2003 configuration tasks</a></td>
</tr>
<tr>
<td>Installing Perception Server on Windows Server 2008 and require optimum performance</td>
<td>Perform some <a href="#">additional Windows Server 2008 configuration tasks</a></td>
</tr>
</tbody>
</table>

For standard installations of Perception Server, you do not need to perform any of these configuration tasks. You should do so only if you will be taking advantage of functionality listed in the table above.
Installing on a non-English operating system

When installing the English version of Perception Server on a non-English operating system, you will need to configure Perception so that it correctly stores and displays non-English characters.

To do this you will need to ensure that the:

- **English Code page translation table is setup and installed on Windows XP or Windows Server 2003**
- **Correct Language Packs are installed on Windows Vista**
- **Multilingual User Interface packs for Windows Server 2008 are installed**
- **Correct database collation has been setup**

### Installing English Code Page translation table

By default, an operating system will choose the Code Page translation tables that reflect the locale chosen during system setup. When installing an English version of Perception, the operating system needs to have the Code Page translation table set to **1252 (ANSI - Latin I)** as well as the Code Page for any other language types you want to use with Perception. The **1252 (ANSI - Latin I)** Code Page translation table is important because the English language version of Perception uses it in the database layer. The database layer controls all the application calls to and from the database.

If the database server is a separate machine to the Perception Server it will also need to be setup with the correct Code Page Translation tables as well.

The following instructions are the same for Windows Server 2003 and Windows XP.

To find out which code page conversion tables you have installed:

1. Select **Regional and Language Options** from the **Control Panel**
2. Select the **Advanced** tab

   The code page conversion tables installed are represented in the list
Perception requires the 1252 (ANSI - Latin I) code page to be installed as standard. Other code pages required will depend on your Server operating system language and any other character types you want to use with Perception (i.e. 1250 (ANSI - Central Europe))

For a full list of the code page identifiers available in Windows, please refer to:


3. Place a checkmark in the check box of any additional code page conversion table you require
4. Click OK to install them

Installing Language Packs on Windows Server 2008 and Vista

Language packs allow users to not only install the required scripting to use alternative alphabets but also give the user the opportunity to change the display language of the user interface, including menus and applications.

If you are using a non-English version of Windows Server 2008 or Vista to run Perception you will need to install a Language pack that contains English. This will need to be done on all the Windows Server 2008 or Vista machines used in the Perception installation.
To install a Language pack for Vista it is possible to use the *Windows Update* service to automatically download them. Please refer to the Microsoft instructions for further details.

Language packs for Windows Server 2008 can be downloaded from the Microsoft web site below:


To install a language pack in Windows Server 2008 complete the following steps:

1. Click **Regional and Language Options** from the **Control Panel**
2. Click the **Keyboards and Languages** tab
3. Under **Display Language**, click **Install/uninstall languages**, and then follow the steps.

   If you are prompted for an administrator password or confirmation, type the password or provide confirmation.

   A list of available Language packs can be found at the following website:


### Database Collation

When using a SQL Server or Oracle database, it is important to set the collation of the database correctly. This is to ensure that the characters are stored appropriately for Perception to display. For details about the collation requirements for Perception Server, please refer to System Requirements.

For further details about how to setup your database, refer to:

- [Setting up an Oracle database](#)
- [Creating a SQL Server 2005 database](#)
- [Setting up an SQL Server Express database](#)

If you have already set up your Oracle database but have set it to the incorrect Character Set, we suggest you follow the Oracle Character Set migration Best Practice. Click the link to view the guide.


If you have created your database but it is in the wrong superset of either **AL32UTF8** or **WE8MSWIN1252** you can change the character set from the command prompt using the commands below.

```
C:\> SQLPLUS username/password@connect_identifier (where these are the details of the database administrator)
SQL> SHUTDOWN NORMAL;
SQL> STARTUP MOUNT;
SQL> ALTER SYSTEM ENABLE RESTRICTED SESSION;
SQL> ALTER SYSTEM SET JOB_QUEUE_PROCESSES=0;
SQL> ALTER DATABASE OPEN;
SQL> ALTER DATABASE CHARACTER SET AL32UTF8;
SQL> SHUTDOWN NORMAL;
SQL> STARTUP;
```
Before attempting to change the Collation or Character Set of a database you should ensure that you have made a backup of the database.

Oracle also contains a secondary Character Set that refers to the locale of the database. If using **AL32UTF8** this can be set to any locale required, but if using **WE8MSWIN1252** this must be set to English, United Kingdom or United States. For details about how to change the national character set, please refer to the Oracle Character set migration Best Practice above.

**Further Information**

For further details about Character Set migration please refer to:

- [Character Set Migration for Oracle 11g](http://download.oracle.com/docs/cd/B28359_01/server.111/b28298/ch11charsetmig.htm)
- [Character Set Migration for Oracle 10g](http://download.oracle.com/docs/cd/B19306_01/server.102/b14225/ch11charsetmig.htm)
Installing Perception on a 64-bit Operating System

Perception is designed to be run on a 32-bit (x86) operating system. However, it is also possible to install Perception on a 64-bit (x64) operating system with some minor modifications. The following section describes how to modify your 64-bit operating system to support Perception.

To successfully install and configure Perception you will need to ensure that the following actions are taken prior to installing:

- IIS must have the 32-bit compatibility mode enabled

If you are using Windows Server 2008 R2, please refer to the following section instead:

- Configuring Windows Server 2008 R2

Running 32-bit applications in 64-bit IIS

To enable 32-bit applications to run in a 64-bit version of IIS you will need to ensure that the correct setting are enabled. The settings are enabled by running specific commands and parameters from the command line. You will need to launch the command line prompt as an administrative user (you can do this by logging in as an administrative user or by right clicking on the command prompt icon and clicking Run As...)

To enable 32-bit applications to run in IIS enter the following command at the prompt:

```
cscript %SYSTEMDRIVE%\inetpub\admins\adsutil.vbs SET W3SVC/AppPools/Enable32bitAppOnWin64 1
```

To enable the 32-bit version of the .NET 2.0 Framework for use with Perception you will need to run the following command:

```
%SYSTEMROOT%\Microsoft.NET\Framework\v2.0.50727\aspnet_regiis.exe -i
```

or if that is unavailable try:

```
%SYSTEMROOT%\Microsoft.NET\Framework64\v2.0.50727\aspnet_regiis.exe -i
```

With the above settings applied you can now install Perception following the instructions found in:

1. Running the install application
2. Creating a repository
Access rights set for Perception

The folder access rights required for Perception are automatically set during installation. This section provides details about the access rights set by the installer and is intended for users who may require this information if they are working within a ‘locked down’ environment or want to set the access rights manually.

The following default folders are created/used by Perception:

- **A** - Installation folder - Default: `C:\Program Files\Questionmark\Perception5` and all sub-folders
- **B** - Repository folder - Default: `C:\Perception5` and all sub-folders
- **C** - COM and dlls folders - `C:\Program Files\Common Files\Questionmark`
- **D** - If QPLA is installed independently - Default: `C:\Program Files\Questionmark\Perception5\QPLA`
- **E** - Windows Temp folder (for Enterprise Manager) - `C:\WINDOWS\Temp`
- **F** - .NET Temp folder - `C:\WINDOWS\Microsoft.NET\Framework\v2.0.50727\Temporary ASP.NET Files`

The following table highlights which permissions should be applied to each of the above folders:

<table>
<thead>
<tr>
<th>Folder</th>
<th>Full Control</th>
<th>Modify</th>
<th>Read &amp; execute</th>
<th>List folder contents</th>
<th>Read</th>
<th>Write</th>
<th>Special permissions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A -</strong></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>IUSR</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>SYSTEM</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Administrators</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Users</td>
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<td></td>
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</tr>
<tr>
<td>IIS_IUSRS</td>
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<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
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<tr>
<td>IIS_WPG</td>
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<td>X</td>
<td>X</td>
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<tr>
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<td>Administrator</td>
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<td>X</td>
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<tr>
<td>Users</td>
<td>X</td>
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<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>IIS_WPG</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td><strong>D</strong> -</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IUSR</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SYSTEM</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Administrators</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Users</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>IIS_IUSRS</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>IUSR_&lt;name&gt;</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>IIS_WPG</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td><strong>E</strong> -</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IUSR</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SYSTEM</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Administrators</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Users</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>IIS_IUSRS</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>IIS_WPG</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>IUSER_&lt;name&gt;</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td><strong>F</strong> -</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>SYSTEM</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Administrators</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Folder</td>
<td>Full Control</td>
<td>Modify</td>
<td>Read &amp; execute</td>
<td>List folder contents</td>
<td>Read</td>
<td>Write</td>
<td>Special permissions</td>
</tr>
<tr>
<td>-----------------------</td>
<td>--------------</td>
<td>--------</td>
<td>----------------</td>
<td>----------------------</td>
<td>------</td>
<td>-------</td>
<td>---------------------</td>
</tr>
<tr>
<td>Users</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IIS_IUSRS</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>WMSvc</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>IIS_WPG</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Network Service</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>ASP.NET</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

The following Special Permissions need to be applied where indicated above:

<table>
<thead>
<tr>
<th>Special permission</th>
<th>WMSvc</th>
<th>IUSR</th>
<th>IIS_IUSR</th>
<th>Users</th>
<th>USER_&lt;name&gt;</th>
<th>IIS_WPG</th>
<th>ASP.NET</th>
<th>Network Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full control</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Traverse folder / execute file</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>List folder / read data</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Read attributes</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Read extended attributes</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Create files / write data</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Create folders / append data</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Write attributes</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Write extended attributes</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Delete subfolders and files</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Delete</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Read permissions</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change permissions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Take ownership</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
All the above permissions need to be propagated through to all sub-folders and files

The following users appear in the operating systems below.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>SYSTEM</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Administrators</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Users</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>IIS_IUSRS</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>IUSR</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>WMSvc</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>IIS_WPG</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>ASPNET</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IWAM_&lt;name&gt;</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>IUSER_&lt;name&gt;</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>NETWORK SERVICE</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>ASP.NET</td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>
Configuring Language codes

Questionmark Perception Version 5 contains a new flexible tool for translating questions and assessments known as the Translation Management System. TMS allows users to select the base language of topic, questions and assessments and translate them into a target language.

If you intend to use TMS to translate content it is recommended that you ensure that the languages and language codes you intend to use are included in the languages.config file before you create any translation. This is recommended because changing an existing entry once content has been translated into this, will cause issues when attempting to edit or deliver the content to participants because of a mis-match between the languages.config file and what is registered in the repository.

Base and target languages are selected by authors responsible for translating. The options that they can select are stored in the languages.config file stored in the following location:

C:\Perception5\Repositories\shared\<MyRepository>\system

Where <MyRepository> is the name of your shared repository.

The languages.config file contains the following set of information for each language.

```xml
<add
code="xx-ZZ"
workingname="Language (Country)"
flagpath="Flag image"
nativename="Native Language name (Native Country)"
/>
```

Where:

- **xx-ZZ** is the character language code for the language
- **Language (Country)** is the language and country name. For example English (United States)
- **Flag image** is the name of the image associated with this language from the shared repository. For example, us.gif
- **Native Language name (Native Country)** is the name of the language and country as it is referred to by people from that country

An example of an entry can be found below:

```xml
<add
code="sv-SE"
workingname="Swedish (Sweden)"
flagpath="se.gif"
nativename="Swedish (Sweden)"
/>
```
Configuring Parent Paths permissions

Parent Paths provide IIS with the ability to use a double period (i.e., ..) in link or application path names to refer to a folders above the current folder. This is used by Perception to move up the folder tree in certain parts of the application.

Parent Paths is not enabled by default in IIS 6 or 7. If Enable Parent Paths permission is not set, an error message could appear when you try to run Enterprise Manager.

This section provides information about how to enable Parent Paths in:

- Windows Server 2003
- Windows Server 2008/R2 and Vista/7

Parent Paths is enabled by default in Windows XP.

Configuring Parent Path permissions in Windows Server 2003

To set the Enable Parent Paths permission:

1. Launch Computer Management from Start | Control Panel | Administrative Tools or Right-click the My Computer icon on your desktop and select Manage. This opens the Computer Management tool
2. Expand the Services and Applications folder in the left-hand pane
3. Expand the Internet Information Service sub-folder
4. Click Web Sites
5. Right-click Default Web Site in the right-hand pane and click Properties. Then, open the Home Directory tab
6. Click Configuration
7. Open the **Options** tab

8. If **Enable parent paths** is not ticked, tick it

9. Click **OK** and **OK** again

**Configuring Parent Path permissions in Windows Server 2008/R2 and Vista/7**

To set the 'Enable Parent Paths' permission in IIS 7:

1. Launch **IIS Manager** from **Start** | **Administrative Tools**
2. Select your server from the **Connections** pane
3. Double-click the **ASP** icon from the **IIS** section
4. Locate the **Enable Parent Paths** entry and change the value to **True**
5. Click **Apply**
Load balancing Perception Server

A single installation of Perception Server can address the needs of most organizations. However, it is possible to experience speed and reliability benefits by deploying Perception Server in a load balanced environment. If you want to load balance your Perception Servers, please refer to the following guide:

- Best Practice Guide for Load Balancing

When using load balancing with your Perception Server deployment, the Shared Repository Service and Shared Repository Manager will run on the first installation, while the participant-facing software and Enterprise Manager will run on the other installations. For instructions about how to Load Balance a simple environment, please refer to the following Knowledge Base article:

How do I setup Perception Version 5 for Load Balancing?

⚠️ Installing multiple copies of Perception Server has licensing implications. Please consult Questionmark to ensure that you are licensed for the number of Perception Server installations that you wish to have.

The following diagram represents typical installation of Perception on a single server attached to a database and a multi-server instance connected to a database:

A typical load balanced setup may contain multiple instances of either environment as per the example below.
In the above example the Perception Server and QABS components of Perception are load balanced meaning a request and delivery of data can travel either route and end up in the database. This type of setup allows organizations to increase their bandwidth in terms of assessment simultaneously starting and submitting assessments because the load balancer automatically spreads the load between the available servers. There are many different configurations for a load balanced solutions, please see the Best Practice Guide for Load Balancing for further details.
Creating your own Web shares

When you run the Perception Server install application, the default web shares required by Perception Server will be automatically created. However, users are provided with the option to not create the web shares automatically so that they can be created and configured manually if required.

To create the web shares manually, you will need to create some virtual web directories that are assigned to sub-directories of the Perception installation folder. These directories can then be shared to provide entry points to Perception. For example, if your web site URL is example.com you might want to access perception.php as follows:

http://example.com/assessments/perception.php

For this web entry point to function, you must tell the web server that the web share name (virtual directory name) /assessments maps onto the directory in which you have installed QPLA in to.

The following table outlines the default web shares and their access requirements.

<table>
<thead>
<tr>
<th>Default physical directory</th>
<th>Default web share name</th>
<th>HTTP Access needed</th>
</tr>
</thead>
<tbody>
<tr>
<td>C:\Program Files\Questionmark\Perception5\QABS\</td>
<td>qabs</td>
<td>Read and Scripts</td>
</tr>
<tr>
<td>C:\Program Files\Questionmark\Perception5\EM\</td>
<td>em5</td>
<td>Read and Scripts</td>
</tr>
<tr>
<td>C:\Program Files\Questionmark\Perception5\QPLA\runtime\</td>
<td>perception5</td>
<td>Read</td>
</tr>
<tr>
<td>C:\Program Files\Questionmark\Perception5\OpenAuthoring\</td>
<td>OpenAuthoring</td>
<td>Read and Scripts</td>
</tr>
<tr>
<td>C:\Perception5\server\PLMS\packages\</td>
<td>plms5</td>
<td>Read and Scripts</td>
</tr>
<tr>
<td>C:\Program Files\Questionmark\Perception5\QMWISE\</td>
<td>qmwise5</td>
<td>Read and Scripts</td>
</tr>
<tr>
<td>C:\Program Files\Questionmark\Perception5\EM\dotnetcore\repXCL4\</td>
<td>repxcl5</td>
<td>Read and Scripts</td>
</tr>
<tr>
<td>C:\Program Files\Questionmark\Perception5\ST\</td>
<td>QMSCTWeb</td>
<td>Read and Scripts</td>
</tr>
<tr>
<td>C:\Perception5\Repositories\Shared&lt;repository name&gt;\content</td>
<td>&lt;repository name&gt;_con</td>
<td>Read</td>
</tr>
<tr>
<td>C:\Perception5\Repositories\Shared&lt;repository name&gt;\resources</td>
<td>&lt;repository name&gt;_res</td>
<td>Read</td>
</tr>
<tr>
<td>C:\Perception5\Repositories\Shared&lt;repository name&gt;\system</td>
<td>&lt;repository name&gt;_sys</td>
<td>Read</td>
</tr>
<tr>
<td>C:\Perception5\Repositories\Shared&lt;repository name&gt;\togo</td>
<td>&lt;repository name&gt;_togo</td>
<td>Read and Scripts</td>
</tr>
</tbody>
</table>
You can create your own web shares, naming them as required. However, the virtual directories will need to be directed to the physical directories highlighted in the table and be assigned the necessary access permissions.

To create the web shares manually in IIS 6, complete the steps below:

1. In IIS Manager, expand the local computer, expand the Default Web Site folder, right-click the site or folder within which you want to create the virtual directory, point to New, and then click Virtual Directory. The Virtual Directory Creation Wizard appears.
2. Click Next
3. In the Alias text-box, type a name for the virtual directory (Choose a short name that is easy to type because the user types this name.)
4. Click Next
5. In the Path box, type or browse to the physical directory in which the virtual directory resides, and then click Next
6. Under Allow the following permissions, select the check boxes for the access permissions you want to assign to your users (as indicated in table above), and then click Next
7. Click Finish. The virtual directory is created below the currently selected folder level

To create the web shares manually in IIS 7, complete the steps below:

1. Open IIS Manager
2. In the Connections pane, expand the Sites node in the tree, and then click to select Default Web Site.
3. In the Actions pane, click View Applications
4. On the Applications page, in the Actions pane, click Add Application
5. In the Add Application dialog box, type a name in the Alias text-box. This alias is used to access the content from a URL.
6. In the Physical path text box, type the physical path of the content folder, or click Browse to navigate through the file system to find the folder.
7. Select the Application user (pass-thru authentication) option in the Connect As dialog box.
8. Click Test Settings to verify the settings that you specified for the virtual application
9. Click OK
Configuring E-mail services

Perception can be configured to send emails to participants at the end of assessments, or with Email Broadcast. This can be achieved by setting up an SMTP (Simple Mail Transfer Protocol) service running on the application server or by connecting to an appropriate email server in the Server Settings. If you intend to run your own SMTP service you should make sure you have installed the SMTP service. For further information, please refer to:

- Configuring your server

For information about how to use a separate email service, please refer to:

- Updating the Perception Email settings

If you intend to use the SMTP service to send out emails from the application server follow the instructions below for your particular operating system once the SMTP service has been installed.

In Windows Server 2008, Windows Server 2003, Windows and Windows XP, SMTP is provided by IIS (Internet Information Services) by default. The SMTP service doesn't have to be supplied by Microsoft, however.

The default Perception settings assume the SMTP server is available on the following address and port.

- IP address: 127.0.0.1
- Port: 25

For details about how to configure your server to use SMTP, please refer to the following sections:

- Configuring your IIS SMTP server in Windows XP and Windows Server 2003
- Configuring your IIS SMTP server in Windows Vista and Windows Server 2008

Configuring your IIS SMTP server in Windows XP and Windows Server 2003

If you are using the SMTP server available in IIS, you should make the changes described in this section on the server where you have installed Perception Server. If you are not using IIS as your SMTP server, you will need to refer to the documentation for your SMTP server for instructions.

To configure your IIS SMTP server:

1. Open IIS
   - To open IIS, click Start, click Control Panel, and then double-click Administrative Tools. Click Internet Information Services (IIS) Manager
2. Open the Default SMTP Virtual Server Properties dialog
   - To do so:
     a. Expand the machinename (local computer) folder in the left-hand pane (where machinename is the name of your application server)
     b. Right-click Default SMTP Virtual Server and select Properties
If you cannot see the **Default SMTP Virtual Server** folder, then you do not have SMTP installed. This is included as part of the Email Services Windows component, and you will need to install this before you can use the IIS SMTP server.

3. Open the **Access** tab and click **Authentication...**
4. Ensure that the **Anonymous access** box is ticked and click **OK**. This ensures that Perception can connect to the SMTP server without having to log in
5. Click **Connection...**

![Connection dialog](image)

Ensure that **Only the list below** is selected and that the list includes the IP address **127.0.0.1**. This ensures that only Perception Server can relay mail through the application server.

To add **127.0.0.1** to the list if it not already there, click **Add...** and enter the IP address. Ensure that **Single computer** is selected and click **OK**.

Click **OK** to return to the **Default SMTP Virtual Server Properties** dialog.

6. Click **Relay...**

![Relay Restrictions dialog](image)

Ensure that **All except the list below** is selected and that the list is empty. This specifies that all domains are authorized to use the SMTP server.

If more security is required (such as with public SMTP servers), the option **Only the list below** should be selected, and a list of specific domains should be added, namely those domains specified in the **From**: email address in the Email Broadcast. For example, if you specify
myname@xyzcompany.com in the From: email address, you should ensure that xyzcompany.com is added to the list.

Click OK to return to the Default SMTP Virtual Server Properties dialog.

7. Open the Messages tab

Specify the following messaging information.

- Limit message size to (KB): 2048
- Limit session size to (KB): 10240
- Limit number of messages per connection to: 20

Ensure that the following boxes are not ticked:

- Limit message size to (KB)
- Limit session size to (KB)
- Limit number of messages per connection to

You can restrict the above settings by ticking the relevant box but only if you are sure that doing so will not interfere with emails sent by Email Broadcast.

Click OK

8. Open the General tab

Ensure that the IP address selected is set to (All Unassigned), and that the Enable logging box is ticked.

You can click Properties to confirm the location of the log files.

9. Click Advanced...
Ensure that the (All Unassigned) IP address is configured to use TCP port 25. If it is not, select the IP address and click Edit. Enter 25 into the TCP port box and click OK. Click OK to return to the Default SMTP Virtual Server Properties dialog.

10. Open the Delivery tab and click Advanced... The Advanced Delivery dialog is displayed.

Enter the fully-qualified domain name of your application server. This is the machine name plus full domain name.

If your company has a specific mail server, enter the IP Address of your company's mail server in the Smart host box. If your company does not have a specific mail server, leave it empty.

11. Click OK to return to the Delivery tab.
12. Click OK to confirm any changes.

Configuring your IIS SMTP server in Windows Server 2008

If you are using the SMTP server available in IIS, you should make the changes described in this section on the server where you have installed Perception Server. If you are not using IIS as your SMTP server, you will need to refer to the documentation for your SMTP server for instructions. If you intend to install the SMTP server in Windows Server 2008 the following components will also be added by default.

- IIS 6 Metabase Compatibility
- IIS 6 Management Console
See the section Windows Server 2008 for details about installing the SMTP service. Once installed complete the following steps to setup SMTP E-mail in Windows Server 2008:

1. Open Internet Information Services (IIS) 6.0 Manager
2. Select your computer from the drop-down list
3. Open the SMTP Virtual Server Properties dialog

   To do so:
   a. Expand the machinename (local computer) folder in the left-hand pane (where machinename is the name of your application server)
   b. Right-click SMTP Virtual Server and select Properties

      If you cannot see the SMTP Virtual Server folder, then you do not have SMTP installed. This is included as part of the Email Services Windows component, and you will need to install this before you can use the IIS SMTP server.

4. Open the Access tab and click Authentication...
5. Ensure that the Anonymous access box is ticked and click OK. This ensures that Perception can connect to the SMTP server without having to log in
6. Click Connection...

   Ensure that Only the list below is selected and that the list includes the IP address 127.0.0.1. This ensures that only Perception Server can relay mail through the application server.

   To add 127.0.0.1 to the list if it not already there, click Add... and enter the IP address. Ensure that Single computer is selected and click OK.

   Click OK to return to the SMTP Virtual Server Properties dialog.
7. Click Relay...
Ensure that **All except the list below** is selected and that the list is empty. This specifies that all domains are authorized to use the SMTP server.

If more security is required (such as with public SMTP servers), the option **Only the list below** should be selected, and a list of specific domains should be added, namely those domains specified in the **From:** email address in the Email Broadcast. For example, if you specify `myname@xyzcompany.com` in the **From:** email address, you should ensure that `xyzcompany.com` is added to the list.

Click **OK** to return to the **SMTP Virtual Server Properties** dialog.

8. Open the **Messages** tab

   Specify the following messaging information.

   - Limit message size to (KB): 2048
   - Limit session size to (KB): 10240
   - Limit number of messages per connection to: 20

   Ensure that the following boxes are not ticked:
   - Limit message size to (KB)
   - Limit session size to (KB)
   - Limit number of messages per connection to

   You can restrict the above settings by ticking the relevant box but only if you are sure that doing so will not interfere with emails sent by Email Broadcast.

   Click **OK**

9. Open the **General** tab
Ensure that the IP address selected is set to (All Unassigned), and that the Enable logging box is ticked.

You can click Properties to confirm the location of the log files.

10. Click Advanced...

Ensure that the (All Unassigned) IP address is configured to use TCP port 25. If it is not, select the IP address and click Edit. Enter 25 into the TCP port box and click OK.

Click OK to return to the SMTP Virtual Server Properties dialog.

11. Open the Delivery tab and click Advanced... The Advanced Delivery dialog is displayed
Enter the fully-qualified domain name of your application server. This is the machine name plus full domain name.

If your company has a specific mail server, enter the IP Address of your company's mail server in the Smart host box. If your company does not have a specific mail server, leave it empty.

Click OK to return to the Delivery tab

12. Click OK to confirm any changes

**Updating the Perception Email settings**

Once your SMTP Server is ready you will need to setup Perception with the correct details. To setup Perception to use the Email settings requires some modification of the server settings. The server settings can be modified in Enterprise Manager.

To set the appropriate SMTP settings for Perception following the instructions below:

Navigate to Enterprise Manager and sign in using an administrative user

1. Click Administration | Server Management | Server settings
2. Locate the SMTP Settings in the Customer Settings sections
3. Insert the details of your SMTP server
   - If you are connecting to an SMTP server that requires authentication insert the Username and a Password that Perception can use to send emails. If you are using the Perception server as the SMTP server as well the user name and password is not required. However, the Default credentials check-box should be enabled
4. Configure the port and SSL as required and click Save and Exit at the bottom of the page.

It is possible to store two sets of SMTP server details in the settings. The second set of SMTP Settings can be found in the Server Settings section under Server SMTP settings. Fill in the second set of details using a different SMTP server if required. The SMTP server setting can be switched between by un/checking the Use Customer SMTP settings check-box.
Running Perception behind a firewall

If Perception will be run from behind a firewall and be expected to be accessed from outside the firewall via the Internet you will need to ensure you follow the steps described in the following sections:

- Accessing the Shared Repository Service
- Configuring the entry point URLs for QMWiSe
- Configuring Questionmark To Go to work behind a firewall

Accessing the Shared Repository Service

The authoring server runs as a service via TCP/IP. You can control it by modifying the configuration file. You can, for example, change the port setting or use HTTP instead of TCP. This file is named `RepositoryService.exe.config`. If you installed Perception Server in the default location, the file will be located in the following directory:

C:\Program Files\Questionmark\Perception5\Shared Repository Service\bin

You can also edit this file by using Shared Repository Manager. Refer to the Shared Repository Manager Help for instructions on how to do this.

If Perception Server will be run behind a firewall, you need to modify `RepositoryService.exe.config` as follows.

1. Locate the following line in the file:
   
   `<channel ref="tcp">
   
2. Change the line so that it reads the following:
   
   `<channel ref="tcp" port="7800" machineName="machine.yourdomain.com">
   
   Where `machine.yourdomain.com` is the full name of your server (please note this is case-sensitive)

   This setting will configure the shared repository service so that it returns an endpoint URL starting with `tcp://<repository-service-server>:7800`. This URL can then be used by external clients such as Authoring Manager to call the server.

3. Save your changes.

4. Open Shared Repository Manager and click Restart the Shared Repository Service.

Configuring the entry point URLs for QMWiSe

If using or creating a third party application that accesses Perception through the QMWiSe web services certain entry points are used by the application to access Enterprise Manager, assessments, assessment lists and reports. If the Perception Server is setup behind a firewall and the third party application accessing Perception is not, the entry point URLs will need to be updated to point to the external address of the firewall and the firewall will need to have an allow rule created resolves to port 80 on the Perception Server.
Once the allow policy has been enabled the various URLs used to access Perception will need to be updated to the external address of the firewall so that communication is not blocked. The URLs that need to be amended in the Server Settings are:

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>QMWISe Server</td>
<td>Specifies the server address for QMWISe if it is hosted on a separate server than the Perception Server. This should be the server name as viewed by a client browser running on a separate PC outside of the firewall.</td>
</tr>
<tr>
<td>Perception Server</td>
<td>Specifies the server address for the Perception Server.</td>
</tr>
<tr>
<td>QABS Server</td>
<td>Specifies the server address of QABS if it is hosted on a separate server from the Perception Server.</td>
</tr>
<tr>
<td>QPLA Server</td>
<td>Specifies the server address of QPLA if it is hosted on a separate server from the Perception Server.</td>
</tr>
<tr>
<td>Repository server</td>
<td>Specifies the server address of the repository if it is hosted on a separate server from the Perception Server.</td>
</tr>
<tr>
<td>Perception URL</td>
<td>Defines the URL of the Perception PHP used by QPLA. This setting is usually only necessary when an advanced installation of Perception is used.</td>
</tr>
<tr>
<td>System folder</td>
<td>Specifies the folder location of where all the System files are stored on the Perception Server for QPLA. (This is only necessary if you have manually installed Perception in a multi-tiered environment.)</td>
</tr>
</tbody>
</table>

The server settings for the above settings may be the same if installed on a single server or they may be the settings for several servers if you installed perception in a multi-tiered environment.

To change the entry point URLs in Enterprise Manager:

1. Click **Server Management** on the **Administration** menu
2. Click **Server Settings**
3. Scroll down to the **Global Settings** section and locate the settings mentioned in the table above
4. Update each of the entry point URLs to point to the external address of your Perception Server
   - For example - http://ext.firewall.address.xyzcompany.com/
5. Click **Save & Exit** to update the settings

**Configuring Questionmark To Go to work behind a firewall**

When using Questionmark To Go to return results back to a server behind a firewall ensure that you have created an allow rule on your firewall host pointing to port 80 on the Perception Server.

Once the allow policy has been enabled the Perception Server needs the **QMWISe Server** and the **Perception URL** settings in the Server Settings to be updated to allow the .qm2go files to resolve back to the firewall instead of the internal address for the Perception Server.

To change the setting in Enterprise Manager:

1. Click **Server Management** on the **Administration** menu
2. Click **Server Setting**
3. Scroll down to the **QMWISE Server** setting
   
   http://ext.firewall.address.xyzcompany.com/QMWISe5/QMWISe.asmx

4. Update the **QMWISE Server** with the external address of your Perception Server or the QMWISe Server if you are running the service on a separate server

5. Locate and modify the **Perception URL** field to point to the external address of your Perception Server
   
   http://ext.firewall.address.xyzcompany.com/

6. Click **Save & Exit**

The settings have now been changed and made available to the Server.
Configuring SSL

On a normal web server, communications between browser and server are not encrypted. If someone were able to intercept these communications, they would be able to see the information sent from server to browser and vice versa. SSL (Secure Sockets Layer) is a protocol that encrypts this communication, so that if someone were to intercept it, they would not be able to read it (unless they can break the encryption).

Many users of Perception do not need the security that SSL provides, but if you do, and have set up your web server to use SSL, it is easy to run Perception under SSL. You can use SSL with Enterprise Manager and participant-facing software, but not with Authoring Manager. It is recommended that if you have installed Perception in a multi-tiered environment that you enable the Presentation tier and Business Logic tier to use SSL.

If Perception Server will be run using SSL the following components will need to be configured to use SSL:

- Open.php and perception.php
- Enterprise Manager
- QMWISe

If you are using Perception with other features that use SSL you will need to make some additional setting changes. Perception can communicate using SSL with the following services:

- SMTP
- LDAP

Refer to the following sections for more information:

- Enabling PHP to use SSL
- Changing the server settings
- Using SSL with Perception
- Updating the QPLA.ini file
- Using Perception with other services using SSL

Enabling PHP to use SSL

PHP must be enabled to use SSL. This is done by loading the PHP extension OpenSSL. The following section describes how to enable the OpenSSL extension if you used the Questionmark Prerequisites installer to install PHP.

If you used the standalone PHP installer the method to setup OpenSSL is similar. Please refer to the following link from www.php.net for further instructions:

- Installation of extensions on Windows

To add the OpenSSL extension:

1. On the server where QPLA is installed navigate to the folder where the Questionmark Prerequisites were installed to. By default this is C:\PHP
2. Open the file PHP.INI using an ASCII text editor such as Notepad
3. Locate the following section in the file:
4. Add the line `extension=php_openssl.dll`
5. Save the file
6. Restart IIS

The file should now look similar to the following:

```
; Windows Extensions
extension=php_openssl.dll
```

PHP has now been configured to use SSL. Complete the steps below to allow Perception to work with SSL.

**Changing the server settings**

To allow Perception to use SSL you will need to make changes to the server setting, they can be accessed from the **Server Settings** page in **Enterprise Manager**. To access the Server Setting page:

1. Navigate to Enterprise Manager
2. Log in using an administrative user with permissions to alter the server settings
3. Click **System Administration | Server Management | Server Settings**

You can now make the necessary changes to the server settings to use SSL.

Once you have finished making the necessary changes scroll to the bottom of the screen and click **Save & Exit**.

**Using SSL with Perception**

If you intend to use Perception with SSL you will need to change the following settings so that they use the HyperText Transfer Protocol over Secure Socket Layer (HTTPS) rather than the normal method (HTTP).

To use SSL locate the following setting in the Server Settings page of Enterprise Manager and enter the server address.

**Server Settings -> Global Settings -> Perception Server**

This setting will need to be updated to contain the address of the Perception Server. This could be the computer name, for example, if you are running it on an internal intranet or a valid domain name if you intend participants to access Perception via the Internet. If you want to use SSL enter the address name using HTTPS. For example,

```
https:\\MyPerception_Server or https:\\questionmark.com
```

If you intend to run your HTTPS connection through a particular port in IIS then this can be added by appending a colon (:) followed by the port number. For example,

```
https:\\MyPerceptionServer:8081
```
Updating the QPLA.ini file

You will also need to update the QPLA.ini file. This can be located in the following default folders:

Windows:
C:\Program Files\Questionmark\QPLA\

Linux:
- Ubuntu Server - /var/www/Perception5/
- RedHat Enterprise Linux - /var/www/html/Perception5/
- SUSe Linux Enterprise - /srv/www/htdocs/Perception5/

You will need to amend the QPLA.ini file so that the following settings are also aware of the HTTPS settings:

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>messageServiceURL</td>
<td>The address of the QABS service will need to be changed to use https</td>
</tr>
<tr>
<td>repositoryServer</td>
<td>If you are using a multi-tiered installation the address of the Repository Server will need to be set and https added to the URL</td>
</tr>
<tr>
<td>systemDirectory</td>
<td>If you are using a multi-tiered installation the address of the System Directory will need to be set and https added to the URL</td>
</tr>
<tr>
<td>useHttps</td>
<td>The useHttps setting will need to be set to 1 to ensure QPLA knows that SSL is being used</td>
</tr>
</tbody>
</table>

Using Perception with other services using SSL

If SSL is used to secure communications with other services you want to use with Perception you will need to make the necessary changes for this to occur. The following services can be used with Perception if they are using SSL:
- SMTP email services
- LDAP authentication services

To make the necessary changes for the server settings refer to the table below:

<table>
<thead>
<tr>
<th>Service</th>
<th>Setting section</th>
<th>Setting name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMTP</td>
<td>Customer setting</td>
<td>SSL</td>
<td>Place a check in the SSL check-box to enable Perception to communicate with the email server indicated in SMTP server using secure communications.</td>
</tr>
<tr>
<td></td>
<td>SMTP Settings</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Server settings</td>
<td>SSL</td>
<td>Place a check in the SSL check-box to enable Perception to communicate with the email server indicated in SMTP server using secure communications.</td>
</tr>
<tr>
<td></td>
<td>Server SMTP settings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LDAP</td>
<td>Customer settings</td>
<td>LDAPS</td>
<td>Place a check in the LDAPS check-box to enable Perception to communicate with the LDAP server indicated in LDAP Host using secure communications.</td>
</tr>
<tr>
<td></td>
<td>- LDAP Settings</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Server settings</td>
<td>LDAPS</td>
<td>Place a check in the LDAPS check-box to enable Perception to communicate with the email server indicated in SMTP server using secure communications.</td>
</tr>
</tbody>
</table>
Setting application pools to use 'Classic' mode

Perception Server uses application pools. An application pool is a group of one or more URLs that are served by a worker process or set of worker processes of a web application. Perception uses up to 4 application pools because of its multi-tiered architecture. The application pools are called:
- Questionmark.Perception5
- Questionmark.QABS
- Questionmark.QMWISe - Only available if you have setup QMWISe
- Questionmark.QPLA

In Windows Vista, 7, Windows Server 2008 and Windows Server 2008 R2 the application pools created by the installer will need to be setup to work in 'Classic' mode. In most instances this will automatically be done by the installer. However, you may want to check to ensure that this is the case and that the Application Pools have not been assigned as 'Integrated'.

Follow the instructions below for information about how check and change the application pools:

1. Launch IIS (Right click on the IIS Manager icon and click Run as administrator, enter a user name and password, if required)
2. Select your server from the list of available server
3. Click View Application Pools from Actions menu on the right
4. Check the mode for each application pool in the Managed Pipeline Mode column

If any need changing:

1. Select the application pool
2. Click Set Application Pool Defaults...
3. Select Classic from the Managed Pipeline Mode drop-down list
4. Click OK
Using Windows authentication with SQL Server 2005 or 2008 databases

This section describes how to configure Perception to use Windows authentication to secure the communications between Perception Server and the SQL Server 2005 or 2008 database. This section is divided in to the following sections:

- What is the difference between SQL Server authentication and Windows authentication?
- Configuring Windows authentication on your Perception Server
- Setting the Perception database to use Windows authentication
- Configuring IIS to use Windows authentication
- Configuring the Shared Repository Service to use Windows authentication

Using Windows authentication to control access to the database is only possible with SQL Server 2005 and 2008.

What is the difference between SQL Server authentication and Windows authentication?

SQL Server authentication and Windows authentication provide unique methods for authentication of users and applications wanting access to databases. The decision tree below provides information about how the authentication process for the two methods differ.
Windows authentication uses a specific domain user account or group that has access permission for select databases and to specific servers. This allows the domain user account to be controlled by Active Directory or Domain Controllers within an organization. While SQL Server authentication is only controlled by the database server. Windows authentication allows organizations to use the following features that are not available or are inferior in the SQL Server authentication method.

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improved encryption of database passwords</td>
<td>The encryption and transmission of Windows authentication is more secure than SQL Server authentication.</td>
</tr>
<tr>
<td>Account lockout</td>
<td>The Windows account used by Windows authentication can be set to automatically lockout if the server detects someone trying to unlawfully gain access by using a brute force method of hacking a password.</td>
</tr>
</tbody>
</table>
Using Windows authentication means that any part of Perception that access the database will need to use the same user account information to be granted access. This requires the following Perception components to have their configuration changed to include the account information:

- Shared Repository Service
- Perception virtual directories
- Perception database
- Perception Server

The below instructions are only for Windows Server 2003. If you are using Windows Server 2008, please refer to the following Knowledge Base article for guidance about how to setup Windows authentication for use with the Perception repository:


### Configuring Windows authentication on your Perception Server

To configure Windows authentication a number of changes will need to be made on the machine hosting Perception and the Perception database server. Refer to the following section to make the necessary changes:

- Configure your server to successfully use Windows authentication
- Use Windows authentication with your Perception database
- Configure IIS to use Windows authentication with Perception
- Configure the Shared Repository Service to use Windows authentication

### Configuring your server for Windows authentication

To use Windows authentication with IIS successfully it is recommended that you carry out the following steps:

- Enable Parent Paths
- Configure IIS to only use the NTLM protocol for Windows authentication
- Configure Windows Server 2003 to use NTLM communication
- Add the domain user for Windows authentication to the appropriate local groups

### Enabling Parent Paths

For Windows authentication you will need to enable Parent Paths in IIS. For instructions about how to complete this, please refer to the Configuring Parent Paths permissions section.
Configuring IIS to only use the NTLM protocol for Windows authentication in IIS 6

To configure IIS so that it only uses the NTLM protocol for Windows authentication complete the following steps:

1. Launch IIS
2. Right click on the Server Name and click **Properties**
3. Place a check in the **Enable Direct Metabase Edit** check-box
4. Click **OK**
5. Launch Windows Explorer and navigate to the folder `C:\Windows\System32\Inetsrv`
6. Locate and open the file **Metabase.XML** using an ASCII text editor like Notepad
7. Locate the entry **NTAuthenticationProviders**
8. Change the setting so that it appear as the following:
   
   ```
   NTAuthenticationProviders="NTLM"
   ```
9. Save the changes to the file and restart IIS to initialize the changes
10. Repeat steps 1 to 4 this time un-checking the **Enable Direct Metabase Edit** check-box

Please note that if you are using **Windows Server 2003 64-bit** you will need to use the following steps instead of those listed above:

1. Launch the command prompt as an administrative user
2. Navigate to folder that contains the **Adsutil.vbs** file. By default, it is located in the following directory:
   
   ```
   C:\Inetpub\Adminscripts
   ```
3. Enter the following command at the command prompt:
   
   ```
   cscript adsutil.vbs set w3svc/NTAuthenticationProviders "NTLM"
   ```

You can check if the setting has been enabled by entering the following command:

```
   cscript adsutil.vbs get w3svc/NTAuthenticationProviders
   ```

You should get a response similar to the following:

```
   NTAuthenticationProviders : (STRING) "NTLM"
```

Configuring Windows Server 2003 to use NTLM communication

To configure Windows Server 2003 so that the correct NTLM protocol is available for communication when using Windows authentication complete the steps below:

1. Click **Start** | **Control Panel** | **Administrative Tools** | **Local Security Policy**
2. Expand the folders **Security Settings** | **Local Policies** | **Security Options**
3. Locate and right click on the policy **Network Security: LAN Manager authentication level** in the window pane on the right
4. Select Properties
5. Choose **Send LM & NTLM - use NTLM2 session security if negotiated** from the drop-down list

![Network security: LAN Manager authentication level Properties](image)

6. Click **OK**

**Adding the domain user for Windows authentication to the appropriate local groups**

To ensure that access is granted to Perception using the domain user, the domain user will need to be added to certain local groups. For example, the domain user being used for Windows authentication should also be added to the following local groups:

- Administrators
- IIS_WPG (Worker Process Group)

The domain user can be added to these groups using the Computer Management console. To add the domain user to these groups complete the following steps:

1. Click **Start | Control Panel | Administrative Tools | Computer Management**
2. Expand the folders **System Tools | Local Users and Groups | Groups**
3. Double click **Administrators**
4. Click **Add**
5. Enter the name of the domain user in the **Enter the object names to select** text-box
6. Click **Check Names** to confirm the domain user is correct
7. Click **OK**
8. Click **OK** again to close the **Administrators Properties** window
9. Double click on the **IIS_WPG** group
10. Repeat steps 4 to 7

**Setting the Perception Database to use Windows authentication**

You will need to assign a domain user account to access the Perception database. Once the user has been setup you will need to apply this user to Perception.
To do this in SQL Server 2005 complete the following steps on your Perception database server:

1. Launch Microsoft SQL Server Management Studio
2. Select the Database Server name of your machine hosting the Perception database
3. In the **Object Explorer** navigate to the folder **Security | Logins**
4. Right click the **Logins** folder and select **New Login...**

The Login - New window will appear.

5. Ensure the **General** page is selected and click **Search**
6. Click **Locations...** and select your organizations domain from the **Entire Directory** drop-down list
7. Click **OK**
8. Enter the domain user account you want to use to access the database in the **Enter the object name to select** text-box.

![Select User or Group](image)

---

It is recommended that you create a general user account that is solely used to control access to the Perception.

9. Click **Check Name** to confirm the domain account is valid and click **OK**
10. Ensure the **Windows authentication** option button is selected
11. Select the Perception database name from the **Default database** drop-down list
12. Select the **User Mappings** page
13. Place a tick in the check-box that appears in the **Map** column next to the Perception database
14. Place a tick in the **db_owner** check-box in the **Database role membership for** list
The database has now been setup to use Windows authentication. You must change the ODBC connector to use the new details when connecting to the database. To do this follow the instructions below.

1. On the machine hosting the Perception Server navigate to **Control Panel | Administrative Tools | Data Sources (ODBC)**
2. Select the **System DSN** tab
3. The System Data Source you created for your Perception installation initially should appear.
4. Select your Perception DSN and click **Configure**
5. Click **Next >**
6. Select the option button for **With Windows NT authentication using network login ID**
7. Remove the tick from the **Connect to SQL Server to obtain default settings for the additional configuration options** check-box and click **Next >**
8. Ensure the **Change the default database for** check-box is ticked and select or enter your Perception database
9. Click **Next >**
10. Click **Finish**
11. Test the connection to the database server is working

**Configuring IIS to use Windows authentication with Perception**

To use Windows authentication with Perception Server you will need to change the default installation of Perception so that it uses a separate Application Pool for Enterprise Manager and that it is configured to use the same account as the Windows authentication user used by SQL Server and Perception.

To create a new Application Pool for Enterprise Manager:

1. Launch **Internet Information Server (IIS) Manager** on the server hosting Perception
2. Select the computer name of the server
3. Right click on the **Application Pool** folder
4. Select **New | Application Pool...**
5. Enter an **Application pool ID** in the text-box

6. Select the **Use default settings for new application pool** option button
7. Click **OK**
8. Right click on the Application Pool just created and select **Properties**
9. Select the **Identity** tab
10. Select the **Configurable** option button
11. Enter the domain user account and the appropriate password (This will be the same account and password you associated with the Perception database)
With the application pool created you will need to set the virtual directories so that they will use the application pool. To apply the application pool to the virtual directory:

1. Launch **Internet Information Server (IIS) Manager** on the server hosting Perception
2. Select the computer name of the server
3. Select **Web Sites**
4. Select **Default Web Site** (If your Perception Server installation was customized select the appropriate Web site folder)
5. Right click on the **em5** virtual directory and select **Properties**
6. Select the application pool you created above from the **Application pool** drop-down list
7. Click OK
8. Repeat steps 5 to 7 for the `<Repository_Name>_con, <Repository_Name>_res, <Repository_Name>_togo, OpenAuthoring5, qm2golms5, ScoringTool5, qmwise5 and ChartImages virtual directories

If you only host Perception on your server you can change the virtual directories to use the new application pool once in IIS. To do this:
1. Right click on the Default Web site and select Properties
2. Select the Home Directory tab
3. Select the application pool you created from the Application pool drop-down list
4. Click OK

With the application pools set for the virtual directories you now have to configure the authentication and access control for the virtual folders. To do this:
1. Launch IIS
2. Right click on the Default Web Site and click Properties
3. Select the Directory Security tab
4. Click Edit in the Authentication and access control box
5. Enter the domain user account and password you used for the Windows authentication in the User name and Password text-boxes
6. Click OK and Select All the virtual directories you want to make this change to
Configuring the Shared Repository Service to use Windows authentication

You will need to alter the Shared Repository Service so that it uses the same user account to log on and run. Without making this change Authoring Manager users will not be able to connect to a shared repository that is running with Windows authentication. To change the log on information for the Shared Repository Service:

1. Click Start | Run
2. Enter services.msc into the Open text box and click OK
   The Services window will appear
3. Right click on the Questionmark Shared Repository service and select Properties
4. Select the Log On tab
5. Select the This account option button
6. Click Browse to search for the required domain account or type it directly in the This account text-box
7. Enter and confirm the password for the account
8. Click OK

   ![Questionmark Shared Repository Properties (Local Computer) dialog box]

   Log on as:
   - Local System account
   - Allow service to interact with desktop
   - This account: [Enter domain account]
   - Password: [Enter password]
   - Confirm password: [Re-enter password]

You can enable or disable this service for the hardware profiles listed below:

<table>
<thead>
<tr>
<th>Hardware Profile</th>
<th>Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>Profile 1</td>
<td>Enabled</td>
</tr>
</tbody>
</table>

9. Click OK to the messages confirming the permission change
10. Right click on the **Questionmark Shared Repository** service and select **Restart** to enable the changes

Perception Server has now been configured to use Windows authentication to connect to the SQL Server database.
Installing multiple copies

Please note that the following instructions are intended for Perception Version 5.2 only. For instructions relating to Perception Version 5.1, please refer to the following Knowledge Base article:

How can I install multiple-copies of Perception Server Version 5.1 on a single computer?

You may wish to install more than one copy of Perception Server on the same computer. This may be required, for example, if you have different departments wishing to use different repositories. However, the Perception Server install program does not support the automatic installation of multiple copies of Perception Server on the same server. Therefore, if you wish to install multiple copies on the same server, you will need to manually install additional copies of Perception Server once you have installed the initial copy.

Installing multiple copies of Perception Server has licensing implications. Please consult Questionmark to ensure that you are licensed for the number of Perception Server installations that you wish to have

To install multiple copies of Perception Server, you should install your first copy by following the instructions given in Installing Questionmark Perception. However, do not create a shared repository, yet. For the second and each subsequent installation of Perception Server, you will need to:

1. Copy your original Perception Server installation folders to a target location
2. Create new databases
3. Make each instance point to the appropriate ServerSettings.config file
4. Update the ServerSettings.config file
5. Create the necessary web shares
6. Create another repository
7. Update the Server Settings for each instance
8. Verify your new installations of Perception

These steps are described in the following sections.

Once you have installed your multiple copies of Perception you will need to know how to take assessments using them. To do this, please refer to the following section:

Taking assessments from a specific repository

Copying your original installation folders to a target location

By default, Perception Server is installed in the following location:

C:\Program Files\Questionmark\Perception5\
In this folder there are various application folders and files that form Perception Server. For each additional installation you require will need to have an additional copy of these folders and files setup. The folders and files you will need to copy to create a additional instances of Perception are:

- EM
- OpenAuthoring
- QM2GoLms
- QMWISe
- ST
- Shared Repository Service
- ServerSettings.config

If you are going to install a second copy of Perception you will need to create copies of these folders and files. The second copy may appear as follows:

- EM2
- OpenAuthoring2
- QM2GoLms2
- QMWISe2
- ST2
- Shared Repository Service2
- ServerSettings2.config

And the third copy may appear as follows:

- EM3
- OpenAuthoring3
- QM2GoLms3
- QMWISe3
- ST3
- Shared Repository Service3
- ServerSettings3.config

And so on.

You must copy these folders and files to the target location. In the following procedure, we assume that you have chosen to install these new copies alongside the existing copy. For example:

```
C:\Program Files\Questionmark\Perception5\EM2
```

Once these folders have been copied you can create a database and repository for each instance.

**Create a new database for the repository**

You will need to create a new database for each instance of Perception you are planning to make. Each database will then be used to store a repository. For instructions about creating a new database, please refer to the following section:

- [Database setup](#)

You will also need to create a ODBC connection for each of the databases.
Making each instance point to the appropriate ServerSettings.config file

For any new instance of Perception you have created you will need to update the appropriate files so that they refer to the correct ServerSettings.config file. The ServerSettings.config file contains information about the repository and the settings you wish to apply to it. To do this you will need to navigate to each of the folders you copied and edit the web.config or the appropriate .config file.

If you created a second instance of Perception and you have used the suggested format as described above you should have the following folders:

- C:\program files\questionmark\perception5\EM2
- C:\program files\questionmark\perception5\OpenAuthoring2
- C:\program files\questionmark\perception5\QM2GoLms2
- C:\program files\questionmark\perception5\QMWISe2
- C:\program files\questionmark\perception5\ST2

In each of these folder you will need to edit the web.config file using an appropriate text editor, e.g., Notepad. In each of the web.config files you will need to locate the following setting and alter it so that it uses the name of the repository you want to associate with this Perception instance. Each of the web.config files in the folders above should refer to the same repository. To update the web.config complete the following steps:

1. Navigate to the appropriate folder
2. Edit the web.config file
3. Locate the following section in the file:

   <add key="ServerConfigurationLocation" value="C:\Program Files\Questionmark\Perception5\ServerSettings.config"></add>

4. Change the setting to point to the ServerSettings.config file you created specifically for this installation. For example:

   <add key="ServerConfigurationLocation" value="C:\Program Files\Questionmark\Perception5\ServerSettings2.config"></add>

5. Save the changes to the file
6. Repeat the above steps for all the web.config files found in the folders listed above

In the following folder you will need to update two sets of .config files:

- C:\program files\questionmark\perception5\Shared Repository Service2

The first to edit is the SharedRepositoryManager.exe.config. The second .config file can be found in the /bin folder and is called RepositoryService.exe.config.

To make the changes to these files:

1. Edit the .config files
2. Locate the following setting in the file:

   <add key="ServerConfigurationLocation" value="C:\Program Files\Questionmark\Perception5\ServerSettings.config"></add>

3. Change the setting to point to the ServerSettings.config file you created specifically for this installation. For example:
4. Save the changes to the file

**Updating the ServerSettings.config file**

Once you have modified all the .config files to point to the new ServerSettings2.config file (or an appropriate copy of) you will also need to update this file so that it points to the correct Shared Repository Service folder.

To do this:

1. Edit the ServerSettings2.config file (or ServerSettings3.config and so on)
2. Locate the following setting in the file:
   ```xml
defaultRepositoryParentPath="C:\Program Files\Questionmark\Perception5\Shared Repository Service"
```
3. Change the setting to point to the Shared Repository Service folder you created for this instance. For example:
   ```xml
defaultRepositoryParentPath="C:\Program Files\Questionmark\Perception5\Shared Repository Service2"
```
4. Save changes to the file

**Creating the necessary web shares**

For each instance of Perception you are creating you will need to make several new virtual directories. This will allow people to access the new instance of Perception from their web browsers. In the example below we are naming the virtual directories in accordance with the instance we are creating. For example;

Where:

```
C:\program files\questionmark\perception5\EM
```

Is linked to:

```
\default web site\em5
```

The folder:

```
C:\program files\questionmark\perception5\EM2
```

Will be linked to the virtual directory:

```
\default web site\em52
```

To create the new virtual directories complete the following steps:

1. Launch Internet Information Services (IIS) Manager and navigate to \Default Web Site
2. Right click on **Default Web Site** and click **Virtual Directory** from the **New** sub-menu

3. The Virtual Directory Creation Wizard opens, click **Next**

4. Enter an **Alias**, this will be the name you want people to access this application from on the web server. For example, **em52** as described above

5. Click **Next** followed by **Browse**

6. Locate the folder you want to associate with this virtual directory and click **OK**. In this example it will be, **C:\program files\questionmark\perception5\EM2**

7. Ensure the following Virtual Directory Access Permissions are set for each of the virtual directories you need to create.

   ![Virtual Directory Creation Wizard](image)

   **Virtual Directory Access Permissions**
   
   Set the access permissions for this virtual directory.

   Allow the following permissions:

   - **Read**
   - **Run scripts (such as ASP)**
   - **Execute (such as ISAPI applications or CGI)**
   - **Write**
   - **Browse**

8. Click **Next** followed by **Finish**

Repeat the above steps for each of the folders you copied, ensuring that each folder has their own unique virtual directory. You will also need to make sure that each virtual directory you created use ASP.NET 2.0 rather than the ASP.NET 1.1. To do this in IIS Manager complete the following steps:
1. On one of the virtual directories you created, right click on it and select Properties
2. Navigate to the ASP.NET tab
3. Select 2.0.XXXXX from the ASP.NET version drop-down list
4. Click OK to make the changes

With the web shares created and configured you will now need to update the server settings for each instance so that they use these new virtual directories.

**Create your repositories**

You will have to create a shared repository in each of the Shared Repository Managers you copied.

To create a Shared Repository for your original installation, launch the Shared Repository Manager from the Start | Programs | Questionmark | Perception Server 5.2 | Shared Repository Manager and complete the steps below.

To create a repository for each subsequent install of Perception you have setup, you will need to open the Shared Repository Manager by navigating to C:\Program Files\Questionmark\Perception5\Shared Repository Service2 and launching the SharedRepositoryManager.exe. and completing the steps below.

To create a repository for Perception complete the following steps in the Shared Repository Manager:

1. Click Add New Repository

   ![Shared Repositories](image)

   The **Repository Creation Wizard** is displayed

2. Enter a **Name** for your new repository
3. Select the type of database you are using from the **Database type** drop-down list and click **Next**
4. Enter the name of the initial topic. This is the topic at the top of the topic hierarchy, and is also called the root topic
5. Enter the name of the initial assessment folder. This is the assessment folder at the top of the assessment folder hierarchy, and is also called the root folder
6. Ensure that the **Check to enable security in the new repository** box is ticked and click **Next**
7. If you selected SQL Server or Oracle as your database type, you should:
   * Select the Database DSN (Database Source Name) of your database from the drop-down list. You must have already created a blank SQL Server or Oracle database and setup an ODBC connection to it, otherwise the DSN name will not appear in the list. (Refer to **Database setup** for instructions if you have not already done so.)
   * Tick the **Check to run database scripts** check-box as this is required to create the Perception tables in your database
   * Tick the **Check to enable question searching capability** check-box if you want authors to be able to use the Question Search facility in Authoring Manager. Ensure that OracleText has been installed if you are using an Oracle database or Full Text indexing has been
installed and configured for the database if you are using SQL Server. Please refer to the documentation that accompanied your database server for more information about how to install and configure the necessary options.

- If you will be importing data from Perception version 3 tick **Check to import from V3**. Otherwise leave the check box un-checked. If the data you will be importing from Perception version 3 contains Japanese data (characters) or similar place a check in the **Convert V3 Japanese data on import** check-box.

8. Click **Next**

9. You should now be presented with either of the following screens depending on the database server you are using:

- **SQL Server**

  ![SQL Server Login](image)

  You will need to enter the correct details for the SQL Server user you assigned to the database. To check you are logging into the correct database you created earlier, click **Options >>**

  Once the details have been entered click **OK**

- **Oracle**

  ![Oracle ODBC Driver Configuration](image)

  The details have been entered click **OK**
You will need to enter the correct details you assigned to the Oracle database, to ensure that the ODBC connection can successfully be made (if this dialogue box does not automatically appear you can access it by clicking the Change Login Details button).

Once the details have been entered click OK.

10. Confirm the repository creation process by clicking Next. The repository will be created.

11. Click Finish to close the Repository Creation Wizard. A warning screen will be displayed.

12. Click Yes.

13. The Configure Perception Server window is opened. Change the Enterprise Manager Web Share and the QMWISe Web Share to point to the web shares you set up previously.
Click OK

The new repository is now ready to be associated with your new instance. This process will need to be completed for each new instance of Perception you wish to create.

**Updating the Server Settings for each instance**

With the virtual directories created navigate to the new instance of Enterprise Manager using the details you created above. For example:

http://<localhost>/em52/login.asp

Login to Enterprise Manager using the Root System administrator user name and password and complete the following steps:

1. Click **System Administration**
2. Click **Server Management | Server Settings**

3. Locate the following settings in the **Server Settings** section towards the bottom of the page and update the following setting so that they refer to the virtual directories and folders you set up above:

<table>
<thead>
<tr>
<th>Setting</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Default repository parent path</td>
<td>C:\Program Files\Questionmark\Perception5**Shared Repository Service2**</td>
</tr>
<tr>
<td>HTML Editor localization file</td>
<td>C:\Program Files\Questionmark\Perception5**EM2**\localization.xml</td>
</tr>
<tr>
<td>SRS file path</td>
<td>C:\Program Files\Questionmark\Perception5**Shared Repository Service2**\bin\</td>
</tr>
<tr>
<td>Best Practice file location</td>
<td>C:\Program Files\Questionmark\Perception5**Shared Repository Service2**\help\srm.htm</td>
</tr>
<tr>
<td>Help file location</td>
<td>C:\Program Files\Questionmark\Perception5**Shared Repository Service2**\help\srm.htm</td>
</tr>
<tr>
<td>Enterprise Manager virtual directory</td>
<td><strong>/em52/</strong></td>
</tr>
<tr>
<td>Scoring Tool virtual directory</td>
<td><strong>ScoringTool2</strong></td>
</tr>
</tbody>
</table>

4. Click **Save and Exit**

**Verifying your new installations of Perception**

Once you have finished setting up your new installations you should verify that they are working as expected. For more information about how to verify you installation, please refer to the relevant section in **Configuring and verifying**.

**Taking assessments from a specific repository**

The Questionmark Presentation Layer for Assessments (QPLA) is responsible for rendering assessments in a participant's web browser. QPLA is capable of working from various shared repositories by using a specific parameter that identifies which repository to use. This section describes how you can use QPLA with each of the repositories you created above.

Each repository has a Customer ID. The Customer ID is the name of the repository and is used by various parts of Perception to identify which repository it should use.

QPLA can be told which repository to use by appending a parameter to the URL used. For example, to login to take an assessment a participant might use the following:

```plaintext
```

This will connect the participant to the default repository.

However, if you have various instances of Perception on the same machine you will need to identify this to QPLA so that it connects to the required repository and not the default one. This would be done by appending the **CustomerID** parameter, like so:

Where <repository> is the name of your shared repository as created in the Shared Repository Manager.

If a participant connects to a repository where their details are not stored when they attempt to login with their assigned user name and password the following message will be displayed:

**Name or password entered in incorrect**
Optional Windows Server 2003 configuration

Although your Windows Server 2003 machine will still run Perception Server without doing so, we recommend that in certain environments you may want to perform some additional configuration tasks. These can increase the speed and reliability of your installation however if you have a well specified server they may not be necessary.

<table>
<thead>
<tr>
<th>What?</th>
<th>Why?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ensure worker processes are recycled</td>
<td>This enables you to precisely manage faulty worker processes, ensuring that specified applications in those pools remain healthy, and that system resources can be recovered.</td>
</tr>
<tr>
<td>Assign application pools to different processors (only possible with dual processors)</td>
<td>This can help to make your Perception Server installation more robust, secure and may also improve performance.</td>
</tr>
</tbody>
</table>

These tasks are described in the following sections.

**Configuring IIS to recycle worker processes**

If IIS is running in worker process isolation mode, you can configure IIS to periodically restart worker processes in an application pool. This setting enables you to precisely manage faulty worker processes, ensuring that specified applications in those pools remain healthy, and that system resources can be recovered. This functionality is managed from the Recycling tab of an application pools properties page.

By default IIS is configured to recycle processes after they have been inactive for a defined amount of time, measured in minutes. In the example illustrated below, this is 1740 minutes. It is also possible to force an application pool to recycle at specific times. To do so:

1. Open IIS Manager
2. Right-click **Application Pools** and select **Properties**
3. The Application Pools Properties dialog is displayed
4. In the Recycling tab, check the Recycle worker processes (in minutes) box.
5. Check Recycle worker processes at the following times and click Add.
6. In the Select time dialog box, enter a time and click OK.

Repeat this procedure if you want to enter any additional application pool recycle times.

Assigning application pools to different processors

When running Windows Server 2003 on a multi processor server, it is possible to set one application pool to use one processor, and the other application pool to use the other processor. This setting can be made by changing the Processor Affinity settings in the Metabase for the second application pool. You must have Administrator rights to perform this function and this only needs to be done on the machine where Enterprise Manager is installed if you have setup Perception in a multi-tiered environment.

To change processor affinity settings:

1. Locate the \\Inetpub\\AdminScripts directory. If your operating system is installed on the c:\ drive, this queue can be found in:
   
   C:\Inetpub\AdminScripts

2. Open a DOS Prompt and run the following command:
   ```
   >adsutil set w3svc/AppPools/ApplicationPoolName/SMPAffinitized TRUE
   ```
   (Where ApplicationPoolName is the name of your Application Pool - perception5, for example.)
   
   The response will be:
   ```
   SMPAffinitized : (BOOLEAN) TRUE
   ```

3. Run the following command:
   ```
   >adsutil set w3svc/AppPools/ApplicationPoolName/SMPProcessorAffinityMask 0x1
   ```
   (Where ApplicationPoolName is the name of your Application Pool - perception5, for example.)
   
   The response will be:
   ```
   SMPProcessorAffinityMask : (INTEGER) 1
   ```

Additional information on changing processor affinity settings is available at:
Optional Windows Server 2008 configuration

Although your Windows Server 2008 machine will still run Perception Server without doing so, we recommend that in certain environments you may want to perform some additional configuration tasks. These can increase the speed and reliability of your installation however if you have a well specified server they may not be necessary.

<table>
<thead>
<tr>
<th>What?</th>
<th>Why?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ensure worker processes are recycled</td>
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These tasks are described in the following sections.

**Configuring IIS to recycle worker processes**

If IIS is running in worker process isolation mode, you can configure IIS to periodically restart worker processes in an application pool. This setting enables you to precisely manage faulty worker processes, ensuring that specified applications in those pools remain healthy, and that system resources can be recovered. This functionality is managed from the Recycling tab of an application pools properties page.

By default IIS is configured to recycle processes after they have been inactive for a defined amount of time, measured in minutes. In the example illustrated below, this is 1740 minutes. It is also possible to force an application pool to recycle at specific times. To do so:

1. Open IIS Manager
2. Open the server folder and click **Application Pools**
3. Right-click **Application Pools** and select **Properties**
4. The Application Pools Properties dialog is displayed
5. In the Recycling tab, check the Recycle worker processes (in minutes) box
6. Check Recycle worker processes at the following times and click Add
7. In the Select time dialog box, enter a time and click OK

Repeat this procedure if you want to enter any additional application pool recycle times.

Assigning application pools to different processors

When running Windows 2008 Server on a dual processor server, it is possible to set one application pool to use one processor, and the other application pool to use the other processor. This setting can be made by changing the Processor Affinity settings in the application pool configuration file. You must have Administrator rights to perform this function and this only needs to be done on the machine where Enterprise Manager is installed if you have setup Perception in a multi-tiered environment.

To change processor affinity settings:

1. Locate the Application Pool configuration file located in the following folder on your server:
   %systemdrive%\inetpub\temp\appPools\appPool.config
2. Open the .config file and locate the following code for the application pool you want to assign to a processor:

   <applicationPools>
   
   <add name="AppPool" />
   
   <applicationPoolDefaults>

   ...

   Where AppPool is the name of the application pool you are using.

3. Add the following code into the Application Pool section to enable and assign the processor required:

   <smpAffinitized="true"/>

   <smpProcessorAffinityMask="1"/>
Where 1 is the number of the processor you want to use. Do NOT set this to 0 as it will shut down processing by certain processors completely

4. Save the changes to the file and restart your server
Uninstalling Perception Server

You can uninstall Perception Server by using the Windows Add/Remove Programs facility. The uninstall application removes:

- The Questionmark COM DLLs
- The Perception Server Start Menu short-cuts
- The Perception Presentation tier

All Perception Server files installed on your system except for a few data files which are retained in case you need them. Delete these manually if required.

If any files were manually added to the Perception Server installation directory tree after Perception Server was installed, these will not be removed by the installer, nor will the directory tree in which they reside be removed. Most commonly, a file added to the Perception Server directory tree will be a new license file with a `.qmllicense` extension added to the `\Perception5` directory.

In addition, the DSNs and web-shares created by the Perception Server installation program will not be removed by the uninstall application. You will need to remove these manually.

If your Perception Server installation referenced a repository in a SQL Server or Oracle database, the repository will not be removed by the uninstall application.

To uninstall Perception Server:

1. Before starting the uninstall process, make sure that you perform a backup of any data or files that you want to keep. Files you may want to keep could include the Perception Server database (repository) files, template files that you have created, or any resources (graphics or multimedia) files that you have placed in the `\resources` directories.
2. On the server where Perception Server is installed, open the Control Panel and then the run `Add/Remove Programs`.
3. Select the entry for Perception Server and click `Change/Remove`.
4. Click `OK` to confirm that you want to uninstall Perception Server.
5. Once Perception Server has been uninstalled, open IIS and remove the Perception Server Web shares.
6. Use the ODBC Administrator to remove the Perception Server system DSNs.
7. Manually delete the remnants of the Perception Server installation directory tree.

Perception Server is now completely removed from your system.
Appendix

Contained in this appendix are:

- Troubleshooting
- Setting up File Upload questions in Windows Server 2003
- Setting up File Upload questions in Windows Server 2008
Troubleshooting

If you encounter errors while installing Perception it is recommended that you:

- Check the Questionmark Support site for the latest information
- Contact Questionmark Technical Services

The following are some common errors found during installation or setup:

- Installer error messages
- Running Enterprise Manager
- Timeout error

Installer error messages

Following an error during the installation of Perception a message will be displayed by the installer application. The table below lists the possible errors and provides details about each.

<table>
<thead>
<tr>
<th>Error message</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Error 1603</td>
<td>This is a general error for details about the cause of this error refer to the installer log files.</td>
</tr>
<tr>
<td>Out of disk space</td>
<td>This error is reported when the installer has detected that not enough disk space is available to install Perception adequately.</td>
</tr>
</tbody>
</table>

In addition to the error messages reported an error log will also be created. The error log is stored in the Temporary Windows System Folder. The installer errors will be logged in a file called:

- ps50install.log

To view the installer error log or send it to Questionmark Technical Support:

1. Click the Start button
2. Select Run
3. Enter %TEMP% in the Open text-box
4. Click OK

This will open up Windows Explorer in the Temporary folder registered for Windows. Locate the log file(s) with the name stated above.

Running Enterprise Manager

Please refer to the following Knowledge Base articles if you are receiving similar problems when running Enterprise Manager:

- When I try to access Enterprise Manager I get an ASP.NET error message. What should I do?
- Why do I get a 'page cannot be displayed' message relating to an ASP 0131 (Parent Paths) error?
Enterprise Manager will not start, the problem seems to be with ASP.NET or .Net Framework. What can I do?

Timeout error

If you have installed Perception in a multi-tiered environment or a Load Balanced environment you may occasionally come across an issue where a participant attempting to take an assessment is presented with a 50201 error screen.

This error is usually caused by a mis-match of times between the QPLA and QABS tiers or between the Load Balanced instances of Perception. To resolve this issue ensure that the servers are:

- Setup the server to use UTC
- Or, have the servers setup with the same time and in the same time zone

For further information, please refer to the following Knowledge Base article:

Why do I get error 50201 when I try to take an assessment?
Setting up File Upload questions in Windows Server 2003

The following steps need to be done if you intend to use the File Upload question type and you have installed in a Windows multi-tiered environment. You will need to make several modifications to both the QPLA and QABS servers.

On the QPLA server you will need to:

- Change the password of the IUSR account
- Ensure the QPLA server uses the IUSR account

On the QABS server you will need to:

- Create a new IUSR account with the same details as the QPLA server
- Create a folder share for the fileupload folder
- Update the File Upload folder settings

Changing the password of the IUSR account on the QPLA server

To change the password of the IUSR account on the QPLA server, complete the following steps:

1. Click Start | Administrative Tools | Computer Management
2. Select System Tools | Local Users and Groups | Users
3. Right click on the user that starts with the user name of IUSR... and select Set Password. The IUSR account tends to be of the form IUSR_<servername>. Where <servername> is the name of the computer when it was installed
4. Click Proceed
5. Insert a password of your choice in the New password and Confirm password text-boxes and click OK

You will need to remember the IUSR name and password for the remaining steps.

Ensuring the QPLA server uses the IUSR account

Now that you have set a new password for the IUSR account you need to ensure that the details for this account are used by IIS. To do this, follow the instructions below:

1. Launch IIS
2. Navigate to Web Sites | Default Web Site
3. Right click on Default Web Site and select Properties
4. Select the Directory Security tab
5. Click Edit in the Authentication and access control section
6. Ensure a check is placed in the Enable anonymous access check-box
7. Enter the IUSR and password you modified above in the User name and Password text-boxes
8. Click OK followed by OK again to confirm the virtual directories you are making the changes to
Creating a new IUSR account on the QABS server

Now that you have assigned the IUSR account to the Default Web site on the QPLA server you will need to create the same user on your QABS server so that they can communicate. The new IUSR account you create must have the same name and password as the IUSR account on your QPLA server. To create the user, complete the following steps:

1. Click Start | Administrative Tools | Computer Management
2. Select System Tools | Local Users and Groups | Users
3. Select New User from the Action menu
4. In the User name text-box enter the same user name used by the IUSR account on the QPLA server. This must be exactly as it appeared on the other server.
5. Enter a Description of the user for future reference
6. In the Password and Confirm password text-boxes enter the same password you assigned to the IUSR user on the QPLA server
7. Uncheck the User must change password at next login check-box
8. Check the check-boxes User cannot change password and Password never expires
9. Click Create followed by Close

Once the IUSR account has been created you will need to assign this user access to the File Uploads folder share. The following section describes how to create the folder share and assign this user.

Creating a folder share for the fileupload folder

You will need to create a folder share. This folder share will be used by the QPLA server to place any files uploaded in a File Upload question on to the QABS server. If you installed Perception to the default location the File Upload folder will be in the following location, otherwise please check where you installed the Repository Support files:

C:\Perception5\Repositories\shared\<MyRepository>

Where <MyRepository> is the name of your repository

In this folder a fileuploads folder will exist.

To create a file share for this folder follow the instructions below for your operating system:

1. Right click on the fileuploads folder and select Sharing and Security
2. Select the Sharing tab
3. Select the Share this folder option button
4. Enter fileuploads in the Share name
5. Select Maximum allowed from the User limit option buttons
6. Click Permissions
7. Click Add
8. Enter the name of the IUSR account you created previously in the Enter the object names to select text-box
9. Click OK
10. In the Allow column select the Full Control check box and click OK
11. Select the Security tab
12. Click Add
13. Enter the name of the **IUSR** account you created previously in the **Enter the object names to select** text-box

11. Click **OK** followed by **OK** again

12. Select the user you just added from the **Group or user name** list box

13. Under the **Allow** column of the **Permissions for** section place a tick in the **Write** check-box and un-tick the other check-boxes, if possible

14. Click **OK**

You have now created a folder share of the fileupload folder. The folder share can be accessed using a UNC name such as:

```
\<QABS_SERVER>\fileuploads
```

Where `<QABS_Server>` is the name of the server hosting the QABS part of Perception Version 5.

**Updating the File Upload folder setting**

Once you have created the folder share you need to ensure that the QPLA server know where it is. This can be done by completing the steps below:

1. Login to Enterprise Manager on the QABS server using the default administrator user name and password

   The default address to login to Enterprise Manager is:

   ```
   http://<QABS_SERVER>/em5/Login.asp
   ```

   Where `<QABS_SERVER>` is a valid domain name or server name of your QABS server as setup in **Step 1: Installing Perception Server and QABS**

2. Navigate to the **Server Settings** page by clicking **System Administration | Server Management | Server Settings**

3. Locate the **File Upload folder** setting in the **Questionmark Presentation Layer for Assessments** section of the page

   > There are two **File Upload folder** settings on the **Server Settings** page. The first File Upload folder setting in the Folder section of the page is for use by the Scoring Tool and reports. It does not need to be changed for File Upload questions to work. Only the second **File Upload folder** setting in the **Questionmark Presentation Layer for Assessments** section should be changed to point to the folder share on your QABS server.

4. Change this to something similar to `\\<QABS_SERVER>\fileuploads`. As created in the section above.

5. Click the **Save and Exit** button
Setting up File Upload questions in Windows Server 2008

The following steps need to be done if you intend to use the File Upload question type and you have installed in a windows multi-tiered environment. You will need to make several modifications to both the QPLA and QABS servers.

On the QPLA server you will need to:

- Create a new user
- Assign the user to Full Control in IIS
- Connect as new user

On the QABS server you will need to:

- Create another user
- Create a folder share

The final step involves Updating the File Upload folder setting.

On the QPLA server

Creating a user

On the QPLA server:

1. Click Start type in compmgmt.msc (Computer Management) in the search box and press enter
2. Navigate to Local Users and Groups | Users
3. Click Action | New User...
4. Create a new user (ie. fileuploaduser) with password
5. Uncheck **User must change password at next logon**
6. Check **Password never expires**
7. Click **Create**
8. Still in Computer Management right click the user you just created and click **Properties**
9. Select the **Member Of** tab
10. Click **Add** and then click **Advanced**
11. Click **Find Now**
12. Find and select **IIS_IUSRS** and click **OK**. Remove the **Users** group by selecting it and clicking **Remove**, if it appears on the list of assigned groups.

13. Click **OK** again to close the dialog.

**Assigning the user in IIS**

On the QPLA server:

1. Start IIS 7
2. Right click on the **Default WebSite** and click **Edit Permissions**...
3. Select the **Security** tab
4. Click **Edit**
5. Click **Add** followed by **Advanced**
6. Click **Find Now**
7. Select the user you created above (e.g. fileuploaduser).
8. Click **OK**. You may be asked to enter the valid user name and password if on a domain
9. In the Permissions for `<username>` box make sure the **Full Control** check-box is enabled in the **Allow** column
10. Click **OK** and exit out of IIS
Connecting as the new user

You also need to make sure that your new user is used when connecting to the perception5 (by default) virtual directory. To do this:

1. Start IIS
2. Locate the **perception5** site (this may be a dedicated site to perception5 or it may be a parent site, like Default Web Site)
3. Click **Basic Settings...** from the Action menu on the right
4. Click **Connect as...**

5. Choose the **Specific user** option button
6. Set the user you created above
7. Click **OK** and exit out of IIS
On the QABS server

Creating another user

On the QABS server:

1. Click **Start** type in `compmgmt.msc` (Computer Management) in the search box and press enter
2. Navigate to **Local Users and Groups | Users**

3. Click **Action | New User...**
4. Create a new user (ie. `fileuploaduser`) with password
5. Uncheck **User must change password at next logon**
6. Check **Password never expires**
7. Click **Create**
8. Still in Computer Management right click the user you just created and click **Properties**
9. Select the **Member Of** tab
10. Click **Add** and then click **Advanced**
11. Click **Find Now**
12. Find and select **IIS_IUSRS** and click **OK**

13. Click **OK** again to close the dialog

### Creating a folder share for the fileupload folder

You will need to ensure that the fileuploads folder is shared appropriately and the members of the IIS_IUSRS group can contribute (write) to the folder. This folder share will be used by the QPLA server to place any files uploaded in a File Upload question on to the QABS server. If you installed Perception to the default location the File Upload folder will be in the following location, otherwise please check where you installed the Repository Support files:

```
C:\Perception5\Repositories\shared\<MyRepository>
```

Where `<MyRepository>` is the name of your repository

In this folder a **fileuploads** folder will exist.

To create a file share for this folder follow the instructions below for your operating system:
1. Right click on the **fileuploads** folder and select **Share...**
2. In the text box enter the name of the user you created (e.g. fileuploaduser) and click Add
3. For the **Permissions Level** select **Contributor**

![File Sharing dialog box](image)

**Choose people to share with**

People must have a user account and password for this computer to access files you have shared. To change this setting, use the [Network and Sharing Center](#).

<table>
<thead>
<tr>
<th>Name</th>
<th>Permission Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrator</td>
<td>Owner</td>
</tr>
<tr>
<td>fileuploaduser</td>
<td>Contributor</td>
</tr>
<tr>
<td>IIS_IUSR</td>
<td>Reader</td>
</tr>
</tbody>
</table>

[Tell me about different ways to share in Windows](#)

4. Click **Share**
5. You will be shown a page that provides details about the share, click **Done**
You have now created a folder share of the fileupload folder. The folder share can be accessed using a UNC name such as:

\<QABS_SERVER>\fileuploads

Where <QABS_Server> is the name of the server hosting the QABS part of Perception Version 5.

You should try navigating to the above share from the QPLA server to ensure the share works.

**Updating the File Upload folder setting**

Once you have created the folder share you need to ensure that the QPLA server know where it is. This can be done by completing the steps below:

1. Login to Enterprise Manager on the QABS server using the default administrator user name and password

   The default address to login to Enterprise Manager is:

   http://<QABS_SERVER>/em5/Login.asp

   Where <QABS_SERVER> is a valid domain name or server name of your QABS server as setup in Step 1: Installing Perception Server and QABS

2. Navigate to the Server Settings page by clicking System Administration | Server Management | Server Settings

3. Locate the File Upload folder setting in the Questionmark Presentation Layer for Assessments section of the page
There are two File Upload folder settings on the Server Settings page. The first File Upload folder setting in the Folder section of the page is for use by the Scoring Tool and reports. It does not need to be changed for File Upload questions to work. Only the second File Upload folder setting in the Questionmark Presentation Layer for Assessments section should be changed to point to the folder share on your QABS server.

4. Change this to something similar to `\<QABS_SERVER>\fileuploads`. As created in the section above.

5. Click the Save and Exit button