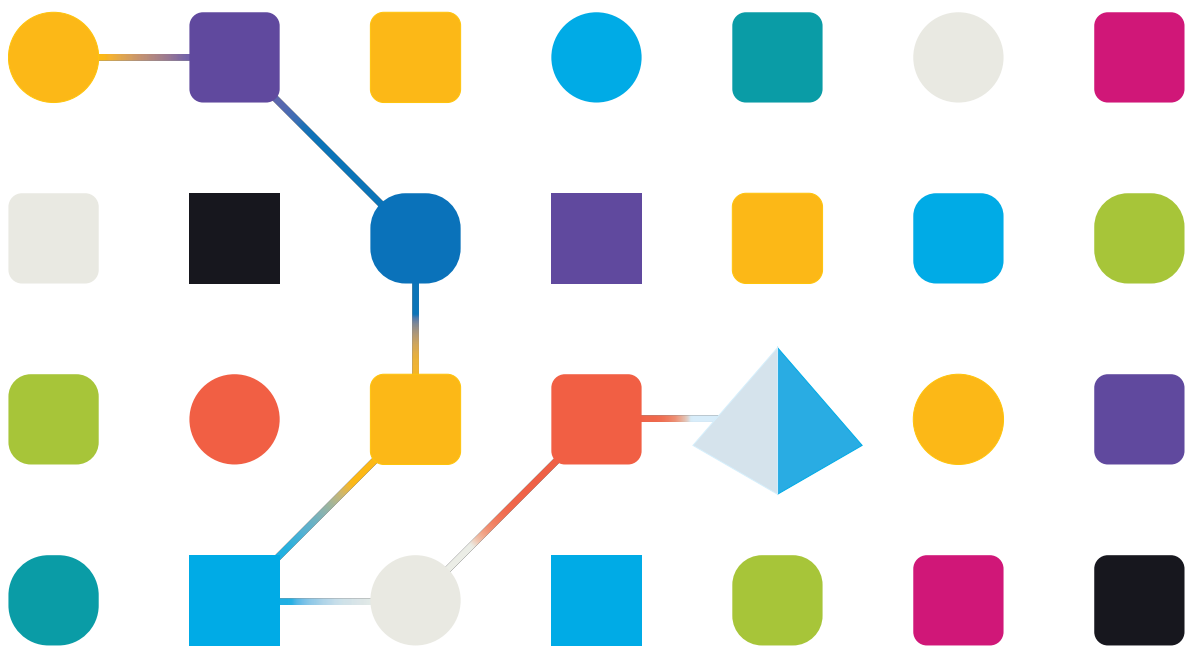




# Hub 4.1 Install Guide

Document Revision: 1.4



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## Installing Hub

This guide provides guidance on the process to follow when installing Blue Prism® Hub.

Blue Prism Hub is only supported in a multi-device deployment, where the Blue Prism components are deployed across a number of devices. The reasons for this are:

- It provides an extensible deployment of Blue Prism components suitable for a broad range of scenarios.
- Advanced techniques relating to deploying additional services or securing and hardening the environment will commonly require this type of deployment.

A number of more advanced topics are also included within this guide to provide information on troubleshooting installations and configuring advanced settings and options. It is assumed that the person carrying out an installation of Hub has prior knowledge or experience with Blue Prism, configuring SSL Certificates, and RabbitMQ.

If further assistance is required whilst following this document, please contact your Blue Prism Account Manager or Technical Support. For more information, see [Contact us](#).

This information relates to version 4.1 of Blue Prism Hub.

 Blue Prism Hub must be installed before attempting to install Interact.

## Upgrading Hub

If upgrading from an earlier version of Hub 4, Blue Prism supplies an upgrader. For more information, see [Upgrading Hub and Interact](#).

## Intended audience

This guide is aimed at IT professionals with experience in configuring and managing networks, servers, and databases. The installation process requires familiarity with installing and configuring web servers and databases.

## Related guidance

The following documents provide further information on specific aspects of the implementation of Hub and its plugins.

Document Title	Description
<a href="#">Hub User Guide</a>	A detailed document explaining how to get the best out of Hub, including user access, licensing plugins and customization of Hub.
<a href="#">ALM User Guide</a>	A document explaining how to use the Automation Lifecycle Management (ALM) plugin. This is a licensed product.
<a href="#">Interact Install Guide</a>	A document explaining the steps required to install Interact. This is a licensed product.
<a href="#">Interact User Guide</a>	A document explaining how to use Interact. This is a licensed product.
<a href="#">Wireframer User Guide</a>	A document explaining how to use the Wireframer option, which is part of the ALM plugin. This is a licensed product.

## Preparation

Prior to undertaking an installation of Blue Prism Hub it is important to ensure that the architecture is configured to support the installation. Multiple systems are required to support the installation of Hub.

### Planning


Before carrying out the installation, the following conditions must be met:

- A SQL Server must be available to host the Blue Prism component databases, such as, IMS , Hub, Audit, and so on. Administrator-level access is required during the installation process. See [Minimum SQL permissions on page 10](#) for more details.
- A Message Broker Server must be available hosting RabbitMQ Message Broker. See [Install the Message Broker server on page 16](#) for more details.
- A Web Server for the Hub installation. See the [Prerequisites on the next page](#) for further information.
- Administrator access to the devices where Blue Prism Hub is to be installed must be available. All devices must meet the minimum specifications and the devices must be able to communicate with each other over the local network, including communication with your Blue Prism Database. DNS should be available to all components.
- The account performing the installation must have access to the hosts file. This is typically stored in C:\Windows\System32\drivers\etc\hosts or %SYSTEMROOT%\System32\drivers\etc\hosts.

When planning your deployment, the following points should be considered:

- Will the database be added to an existing database server or will a new one be commissioned?  
Blue Prism recommend that databases are kept on separate database servers.
- Is there sufficient space and resources to host the added databases?  
You should check and ensure that sufficient disk space and compute resources can cope with the additional load.
- What authentication mode is required for the SQL database (SQL Native or Windows Authentication)?  
This is your IT organizations decision.
- Has the Message Broker server been setup and configured to support the installation of Hub?  
A Message Broker server is required to complete the installation of Hub.
- Do all devices where Blue Prism Hub is to be installed meet the minimum requirements (including version 4.7.2 of .NET Framework)?  
See [Software requirements and permissions on page 9](#) for details.

## Prerequisites

 See [Software requirements and permissions on page 9](#) for details of software requirements and minimum SQL permissions.

Installing Hub requires the following prerequisites:

- The Message Broker server build is a generic setup and base install of a RabbitMQ Message Broker service. It is recommended that the default passwords are changed and any security requirements such as applying SSL certifications are completed by your IT department.

To complete the Message Broker build, the following need to be downloaded:

- Erlang/OTP - the version of Erlang/OTP is dependent on the version of RabbitMQ.

To check the Erlang/OTP version against the RabbitMQ version, see

<https://www.rabbitmq.com/which-erlang.html>.

To download Erlang/OTP, go to <https://www.erlang.org/downloads> and select the appropriate version.

- RabbitMQ Server (supported versions are 3.8.0 through to 3.8.8), available here: <https://github.com/rabbitmq/rabbitmq-server/releases/>


 Installation guidance is provided here: <https://www.rabbitmq.com/install-windows-manual.html>

- Blue Prism Hub is installed on the web server and therefore requires Internet Information Services Manager (IIS) and the .NET Core components installed. These need to be pre-installed to enable a successful installation of Blue Prism Hub. See [Install and configure the web server on page 21](#) for more information.
- Certificates - During the installation process you will be asked for the SSL certificates for the websites being setup. Depending on your infrastructure and IT organization security requirements this could be an internally created SSL certificates or purchased certificates to protect the websites. The installer can be run without the certificates being present, though for the sites to operate, the bindings in the IIS websites will need to have valid SSL certificates present. For more information, see [Configure SSL certificates on page 21](#).
- When using Windows Authentication, defined Windows Service Accounts are required for use with the Blue Prism environment. This is so that Windows Services and Application Pools can be configured correctly for the websites created during the Hub installation.
- By default, IIS Application Pools are used. Application pools must have access to the application files and certificates that are created during installation for data protection and authorization. These certificates are BluePrismCloud\_Data\_Protection and BluePrismCloud\_IMS\_JWT which are located within the default Windows certificate folder. If using Windows Authorization for access to SQL server, this will need to be configured manually. For more information, see [Default application information on page 10](#).
- By default, the 'Local System' account is used for services. This account must have access to application files. If using Windows Authorization for access to SQL server, this will need to be configured manually.

## Software download list

### Blue Prism Hub

This lists all the downloads that are required to install Hub. These are all referenced later in the install guide:

Software and reference link	Related guidance
RabbitMQ 3.8.0 to 3.8.8 For more information, see <a href="#">Downloading and Installing RabbitMQ</a> .	<a href="#">Install the Message Broker server on page 16</a>
Erlang/OTP The version of Erlang that you require is dependent on the RabbitMQ version you intend to use. For more information, see <a href="#">RabbitMQ Erlang Version Requirements</a> .	
IIS 10.0 Included with Windows Server 2016 and Windows Server 2019.	<a href="#">Install and configure the web server on page 21</a>
.NET Core 3.1.3 Windows Server Hosting <a href="https://dotnet.microsoft.com/download/dotnet/thank-you/runtime-aspnetcore-3.1.3-windows-hosting-bundle-installer">https://dotnet.microsoft.com/download/dotnet/thank-you/runtime-aspnetcore-3.1.3-windows-hosting-bundle-installer</a>	
.NET Core 3.1.3 Windows Desktop Runtime <a href="https://dotnet.microsoft.com/download/dotnet/thank-you/runtime-desktop-3.1.3-windows-x64-installer">https://dotnet.microsoft.com/download/dotnet/thank-you/runtime-desktop-3.1.3-windows-x64-installer</a>	
Visual C++ Redistributable 2012 (x64) <a href="https://download.microsoft.com/download/1/6/B/16B06F60-3B20-4FF2-B699-5E9B7962F9AE/VSU_4/vcredist_x64.exe">https://download.microsoft.com/download/1/6/B/16B06F60-3B20-4FF2-B699-5E9B7962F9AE/VSU_4/vcredist_x64.exe</a>	
.NET Framework 4.7.2 <a href="https://dotnet.microsoft.com/download/dotnet-framework/thank-you/net472-web-installer">https://dotnet.microsoft.com/download/dotnet-framework/thank-you/net472-web-installer</a>	
<div>  This is installed by default on Windows Server 2019. You only need to install the .NET Framework if you are using Windows Server 2016.         </div>	
Blue Prism Hub 4.1 Download Hub from any of the following product download pages on the Blue Prism Portal: <ul style="list-style-type: none"> <li>• <a href="#">Automation Lifecycle Management</a></li> <li>• <a href="#">Interact</a></li> </ul>	

## Blue Prism Interact

Blue Prism Interact is a license-controlled plugin in Hub and an additional website for end-users. If your organization intends to use Interact, you will need to download the following in addition to the downloads listed in [Blue Prism Hub on the previous page](#).

Software and reference link	Related guidance
Blue Prism Interact 4.1 Download from the <a href="#">Blue Prism Portal</a> .	<a href="#">Install Blue Prism Interact</a>
Blue Prism Interact Remote API.bprelease file Download from the <a href="#">Blue Prism Portal</a> .	<a href="#">Install and configure the Interact Web API service</a>




# Software requirements and permissions

## Software requirements

The following technologies are supported for use with the software:

### Operating system


Version	Web Server	Message Broker
Windows Server 2016 Datacenter	✓	✓
Windows Server 2019	✓	✓

 Where the Blue Prism components are installed on a 64-bit operating system, it will run as a 32-bit application.

### Microsoft SQL Server

The following Microsoft SQL Server versions are supported for locating the Blue Prism component databases:

Version	Express	Standard	Enterprise
SQL Server 2016	✓	✓	✓
SQL Server 2017	✓	✓	✓
SQL Server 2019 (64-bit)	✓	✓	✓

 SQL Express is only appropriate for non-production environments, such as for the purposes of proof of concept exercises.

The following are also supported:

- SQL Server on Azure Virtual Machines.
- Azure SQL Managed Instance, however, the databases must be created before the installation.

Azure SQL Database is not currently supported.

### Message Broker server

The following software is required on the Message Broker server:

- RabbitMQ 3.8.0 to 3.8.8
- Erlang/OTP - The version of Erlang that you require is dependent on the RabbitMQ version you intend to use.

For appropriate Erlang/OTP support, see [RabbitMQ Erlang Version Requirements](#).

For appropriate operating system support, see <https://www.rabbitmq.com/platforms.html>.

See [Install the Message Broker server on page 16](#) for more information.

### Web server

The following software is required on the Web server:

- .NET Framework 4.7.2 - Installed by default on Windows Server 2019.
- IIS 10.0

- .NET Core Windows Server Hosting 3.1.3
- .NET Core Windows Desktop Runtime 3.1.3
- Visual C++ Redistributable 2012 (x64)

See [Install and configure the web server on page 21](#) for more information.

## Minimum SQL permissions

The minimum SQL permissions for a user required to connect to the database during the installation process must have the appropriate privileges to create or configure the databases from within the product, therefore an appropriate administrator account will need to be used when running the installation process:

- Create Database: dbcreator (server role) or sysadmin (server role)
- Configure Database: sysadmin (server role) or db\_owner (database role)

A database user required to connect to the databases during normal operation must have the minimum SQL permissions to access the Hub and IMS databases. The required permissions are:

- db\_datareader
- db\_datawriter

When using Windows Authentication, the account set as the Identity of the Application Pools requires access to the Blue Prism database for Hub Control Room and Interact purposes. The account must have the minimum SQL permissions to access the Blue Prism database. The required permissions are:

- db\_datareader
- db\_datawriter

When using SQL Authentication, the same requirements apply as for Windows Authentication, but for the SQL account specified in the installation parameters.

For more information, see [Default application information below](#).

## Default application information

The information below shows the applications that are created by the installation using the default values. All applications should have full access to the BluePrismCloud\_Data\_Protection certificate located in the certificate store on the local machine. IIS APPPOOL\ Blue Prism - IMS and IIS APPPOOL\ Blue Prism - SignalR will also require access to the BluePrismCloud\_IMS\_JWT certificate.

### Hub websites

Application name	Example service account name for SQL Windows Authentication	SQL Server permissions required during installation	Database permissions required during application running	Default database name
Blue Prism - IMS	IIS APPPOOL\ Blue Prism - IMS	dbcreator / sysadmin	db_datawriter / db_datareader	lmsDB
Blue Prism - Hub	IIS APPPOOL\ Blue Prism - Hub	dbcreator / sysadmin	For the first login and initial configuration: dbcreator / sysadmin Subsequent logins: db_datawriter / db_datareader	HubDB
Blue Prism - Email	IIS APPPOOL\ Blue Prism - Email	N/A	N/A	N/A

Application name	Example service account name for SQL Windows Authentication	SQL Server permissions required during installation	Database permissions required during application running	Default database name
Blue Prism - Audit Service	IIS APPPOOL\ Blue Prism - Audit Service	dbcreator / sysadmin	db_datawriter / db_datareader	AuditDB
Blue Prism - File Service	IIS APPPOOL\ Blue Prism - File Service	dbcreator / sysadmin	db_datawriter / db_datareader	CacheDB

## Hub services

Application name	Example service account name for SQL Windows Authentication	SQL Server permissions required during installation	Database permissions required during application running	Default database name
Blue Prism - Audit Service Listener	NT AUTHORITY\ SYSTEM	dbcreator / sysadmin	db_datawriter / db_datareader	AuditDB
Blue Prism - Log Service	NT AUTHORITY\ SYSTEM	N/A	N/A	N/A

## Multi-device deployment considerations


When undertaking a multi-device deployment the following items must be considered prior to undertaking the installation.

Area	Environmental concerns (Development / Test / Pre-Production / Production)
General Connectivity	Connectivity between the various devices must be configured appropriately. Commonly this requires DNS to be configured to allow the devices to resolve each other based on their FQDN; and appropriate firewall rules to be in place to allow the devices to communicate on the required ports.
Message Broker Server	This is a single device focused on providing Message Broking services between Blue Prism components. A device per environment is recommended.
Web Server	A single device which can host multiple Blue Prism components. It is not recommended that environments are shared on this device and that a separate device is used per environment.
Database Server instance	Consider if the way that resources are allocated to SQL Server instances make it appropriate to use a single shared instance for deployments of Blue Prism based on their importance and criticality. (For example, Production environments are likely to be most business critical).
Digital Worker Certificates	Decide if there is an additional requirement to apply certificate-based security to the instructional communications from the Interactive Clients and Application Servers to each Digital Worker; and to inbound communications received by the Digital Workers if they are hosting web services. If a certificate is required, this must be manually generated and installed on each applicable Digital Worker. The common name on the certificate must align with the address that the Blue Prism components will be configured to use when communicating with the devices (for example, FQDN or machine short name). Additionally, all devices that will connect to the Digital Workers must trust the Certification Authority that issued the manually generated certificate(s).

## Network ports


To ensure Network connectivity between devices within the architecture the Windows Firewall on the applicable servers will need to allow the following traffic flows:

<b>Database server</b>	Port 1433 to allow SQL Server Connectivity from the Web Server. If the SQL Server instance is a named instance, it will also require: <ul style="list-style-type: none"><li>• The TCP Port for the named instance (this is dynamic by default from the ephemeral range) or the defined port if a static one to allow SQL Server Connectivity from the Web Server.</li><li>• UDP Port 1434 for the SQL Server Browser Service to allow SQL Server Connectivity from the Web Server.</li></ul>
<b>Message Broker server</b>	Port 5672 to allow RabbitMQ Messaging connectivity. Port 15672 to allow RabbitMQ Management Console connectivity.
<b>Web server</b>	Port 443 to allow HTTPS connectivity.
<b>Digital Workers</b>	Port 443 to allow HTTPS connectivity.

 It is recommended that your organization's network infrastructure expert is consulted when configuring the ports. There may be other ports that need to be configured to ensure connectivity in your organization.

## Typical deployment

Suitable for production and non-production use, a typical deployment contains all components of Blue Prism Hub deployed to separate machines.

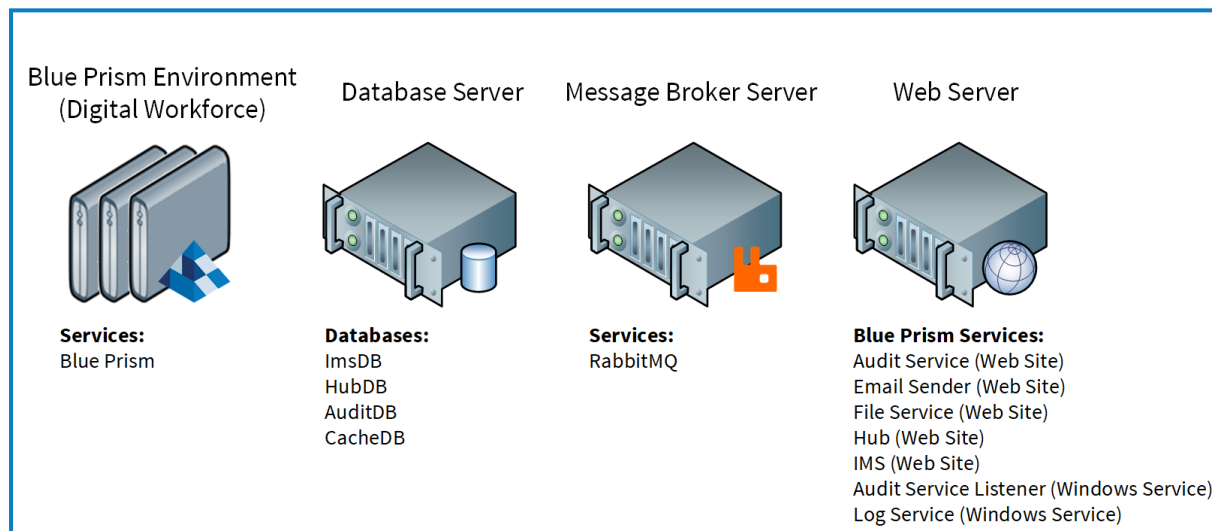
 Prior to following this guidance, ensure that you have fully considered the information in [Preparation on page 5](#).

For production environments, a minimum of four resources are required:

- Blue Prism Environment (Digital Workforce)
- Database Server (SQL Server)
- Message Broker Server
- Web Server

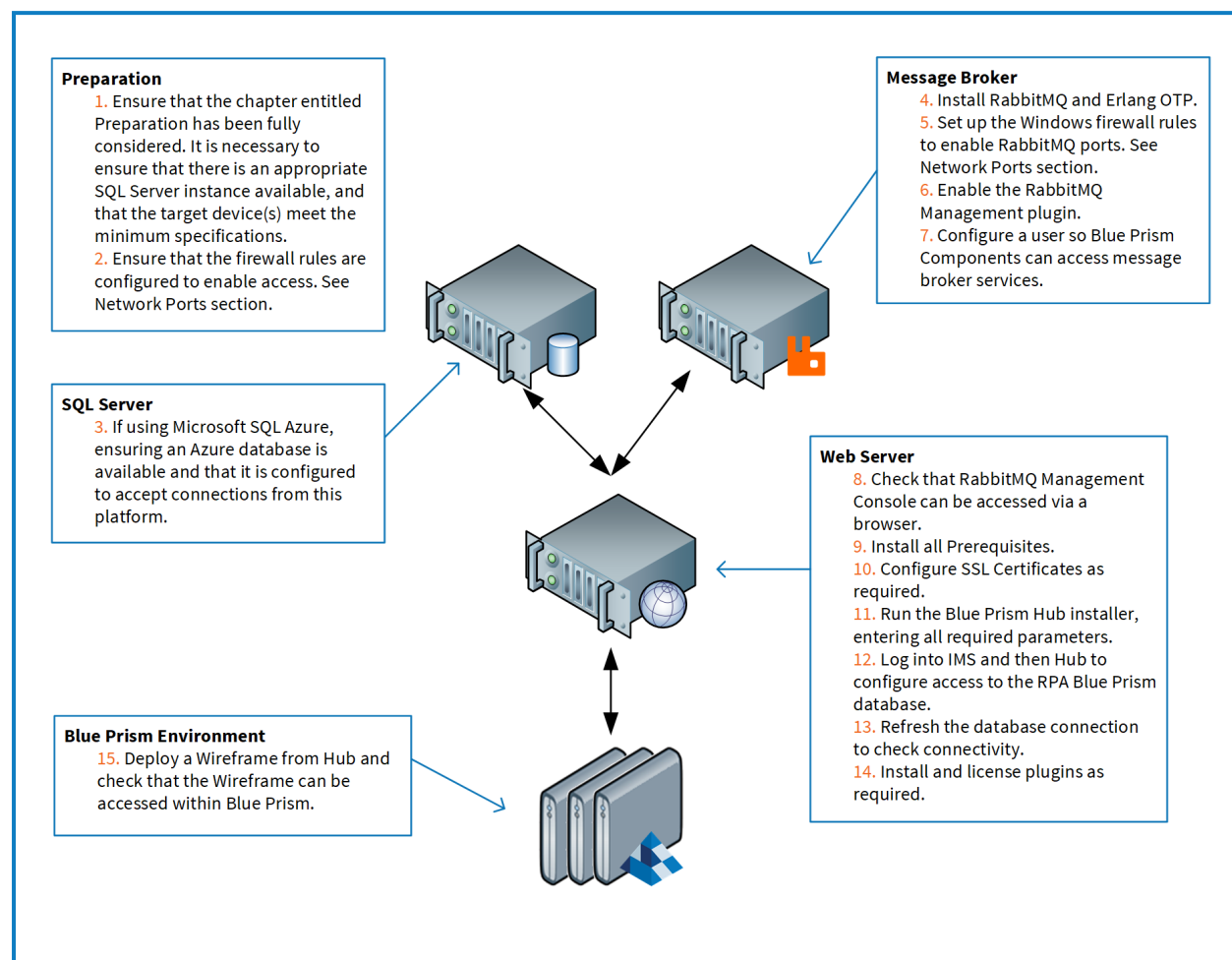
The Message Broker Server and SQL Server instances must be pre-configured prior to the installation of Blue Prism Hub.

The diagram below illustrates the typical architecture for an environment.



## Overview of typical installation steps

An overview of the steps required to complete a typical deployment are provided below.



If you experience problems whilst installing, see [Troubleshoot a Hub installation on page 43](#).

## Install the Message Broker server

Install and configure the Message Broker server, including configuring the Windows Firewall to enable network connectivity and the RabbitMQ management console.

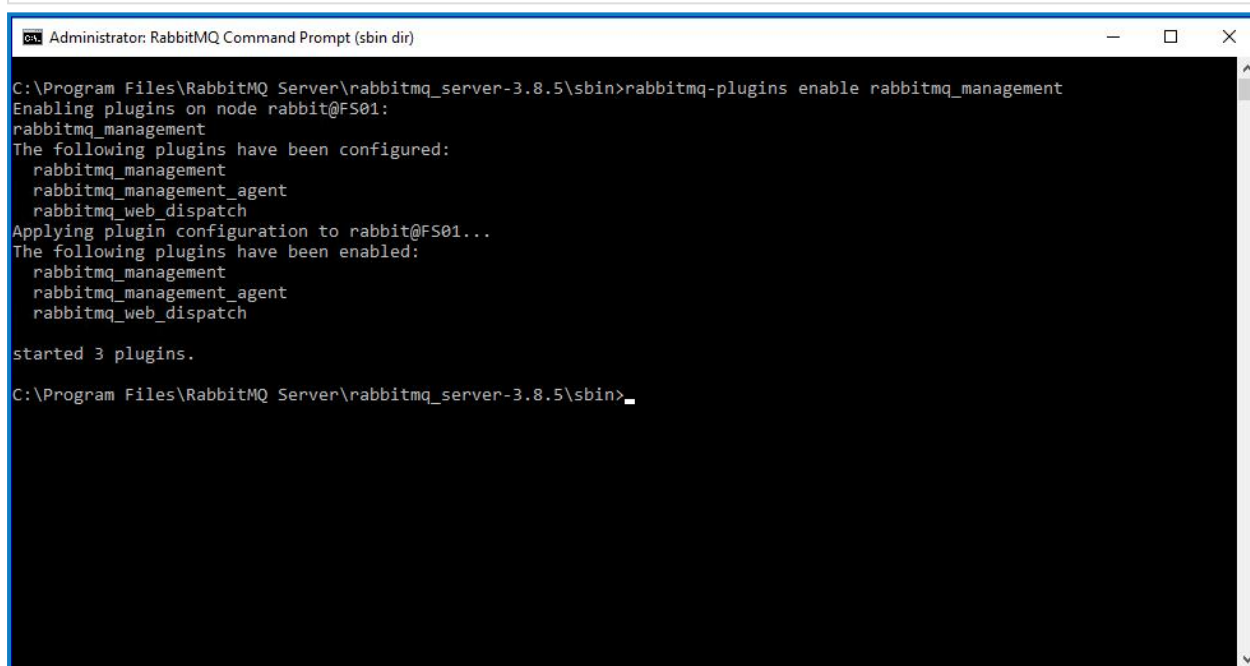
If the Message Broker is not already installed and configured, then follow the steps below:

1. Install [Erlang/OTP](#).
2. Download and install RabbitMQ and accept the default settings.

 For more information, see [Downloading and Installing RabbitMQ](#).

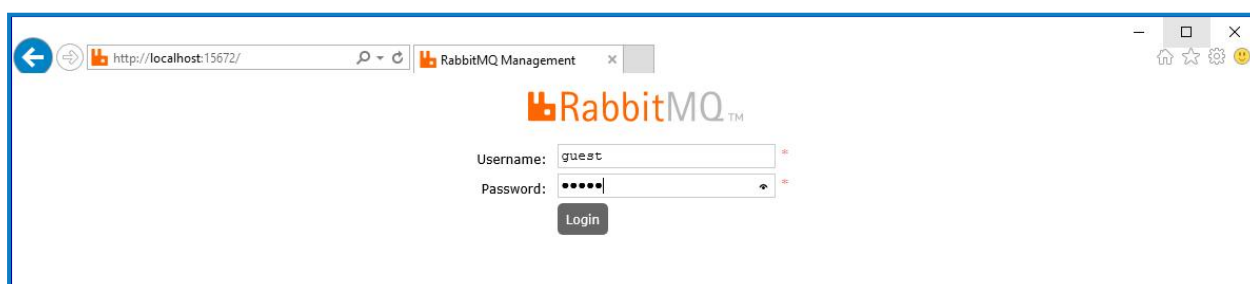
3. Configure Windows Firewall to enable inbound traffic to Ports 5672 and 15672.
4. From the Start menu, under the RabbitMQ Server folder, select the RabbitMQ Command Prompt (sbin dir).
5. In the RabbitMQ Command Prompt window, type the following command:

```
rabbitmq-plugins enable rabbitmq_management
```



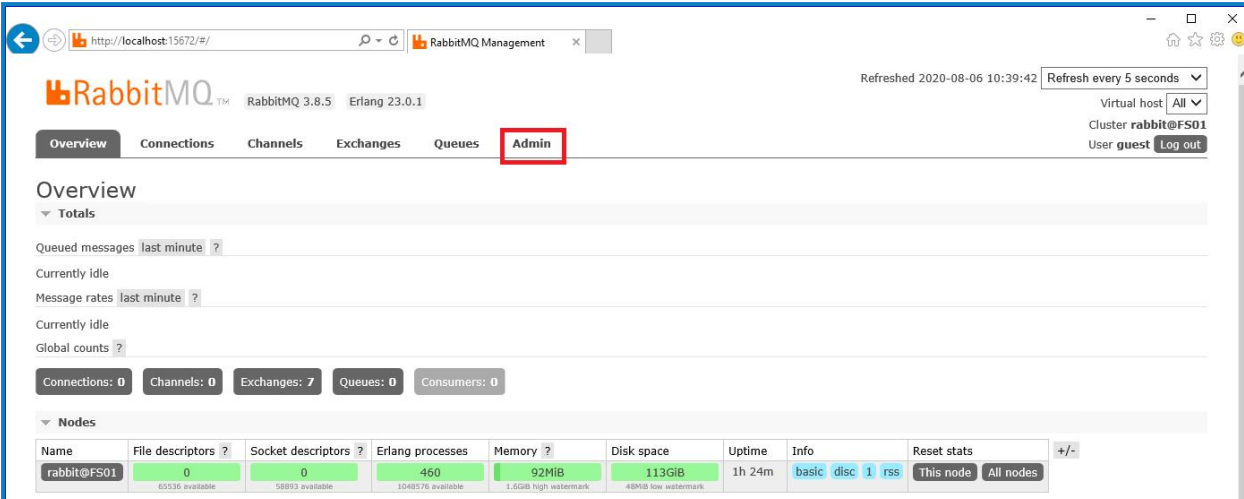
```
Administrator: RabbitMQ Command Prompt (sbin dir)
C:\Program Files\RabbitMQ Server\rabbitmq_server-3.8.5\sbin>rabbitmq-plugins enable rabbitmq_management
Enabling plugins on node rabbit@FS01:
rabbitmq_management
The following plugins have been configured:
  rabbitmq_management
  rabbitmq_management_agent
  rabbitmq_web_dispatch
Applying plugin configuration to rabbit@FS01...
The following plugins have been enabled:
  rabbitmq_management
  rabbitmq_management_agent
  rabbitmq_web_dispatch
started 3 plugins.
C:\Program Files\RabbitMQ Server\rabbitmq_server-3.8.5\sbin>_
```

6. Launch a browser and navigate to the following URL: <http://localhost:15672>
7. In the RabbitMQ console, log on with the default credentials of guest/guest.



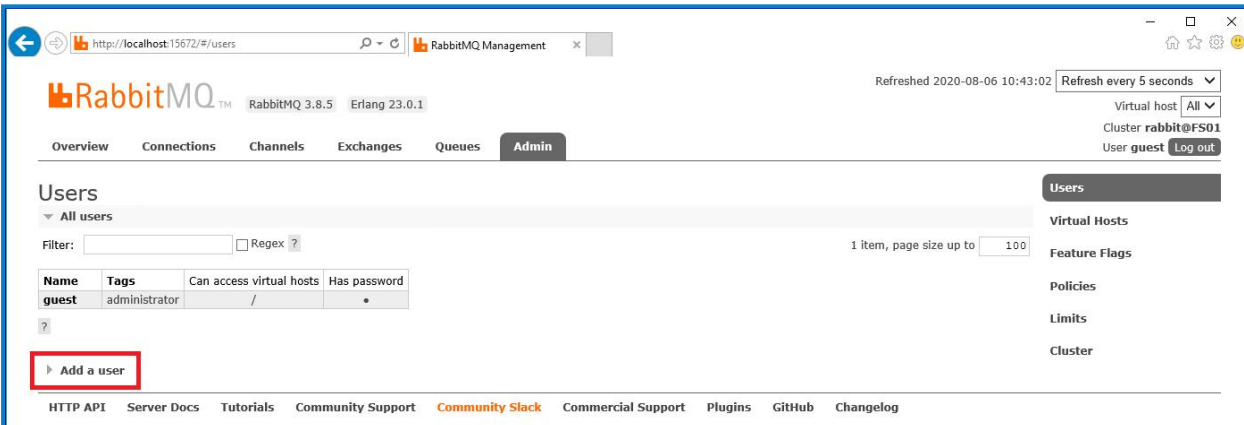


8. In the console, click **Admin**.




The screenshot shows the RabbitMQ Management console interface. The 'Admin' tab is highlighted with a red box. The interface includes a navigation bar with tabs: Overview, Connections, Channels, Exchanges, Queues, and Admin. The 'Overview' section displays various statistics: Queued messages (last minute), Currently idle, Message rates (last minute), and Global counts. A summary bar shows: Connections: 0, Channels: 0, Exchanges: 7, Queues: 0, Consumers: 0. Below this, the 'Nodes' section shows a table with columns: Name, File descriptors, Socket descriptors, Erlang processes, Memory, Disk space, Uptime, Info, and Reset stats. The table lists one node: rabbit@FS01.

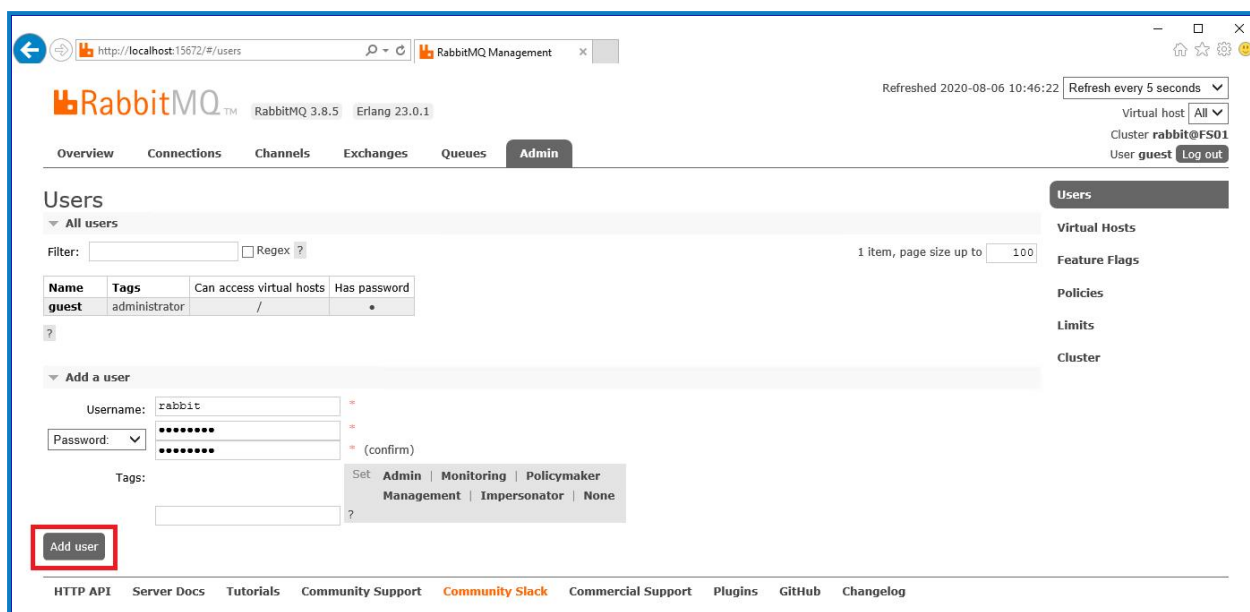
9. Click **Add a user**.



The screenshot shows the RabbitMQ Management console interface with the 'Users' tab selected. The 'Add a user' button is highlighted with a red box. The interface includes a navigation bar with tabs: Overview, Connections, Channels, Exchanges, Queues, and Admin. The 'Users' section displays a table with columns: Name, Tags, Can access virtual hosts, and Has password. The table lists one user: guest. A sidebar on the right contains links to Users, Virtual Hosts, Feature Flags, Policies, Limits, and Cluster. The footer contains links to HTTP API, Server Docs, Tutorials, Community Support, Community Slack, Commercial Support, Plugins, GitHub, and Changelog.

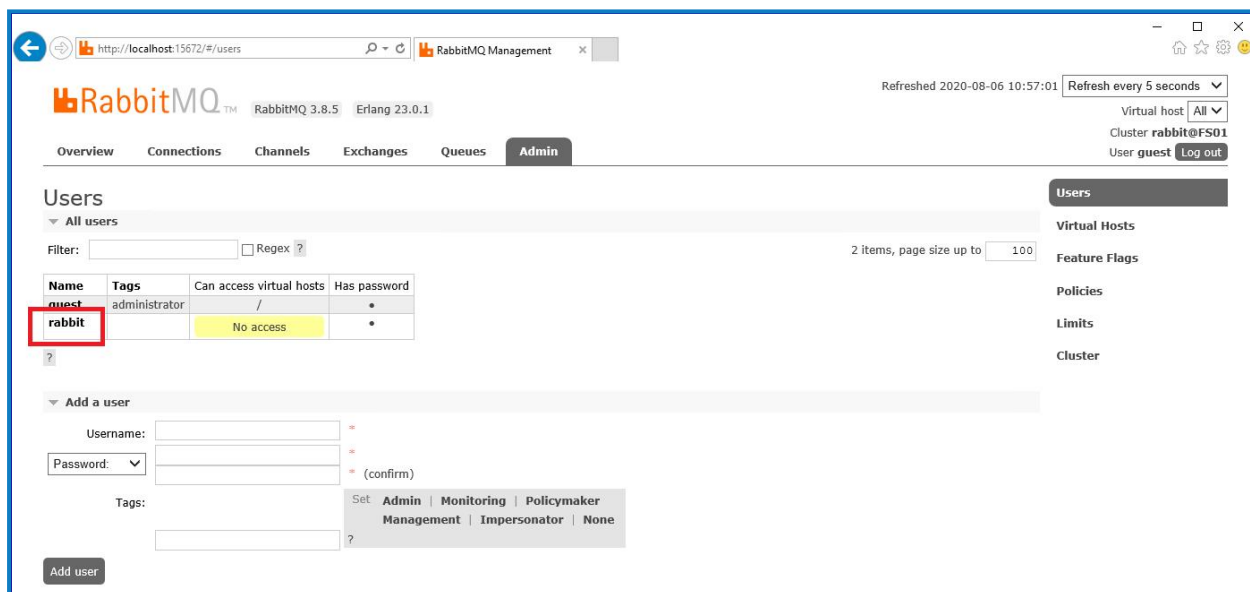
10. Enter the details for a new user, providing the username and password. The user does not require any special permissions and can be left at None.

 The following characters must not be used for the password when creating the RabbitMQ user  
# ! : ? @ \ ' " \$ % ' .

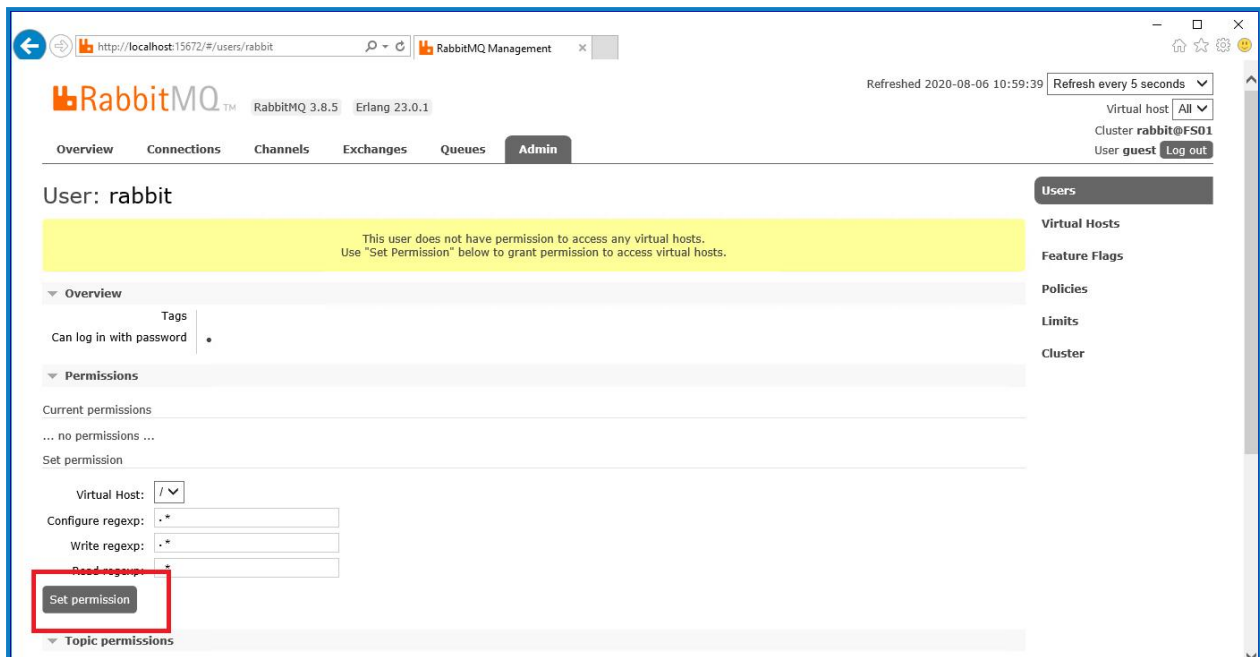
11. Click **Add User**.

The next step is to set the permissions for the user.

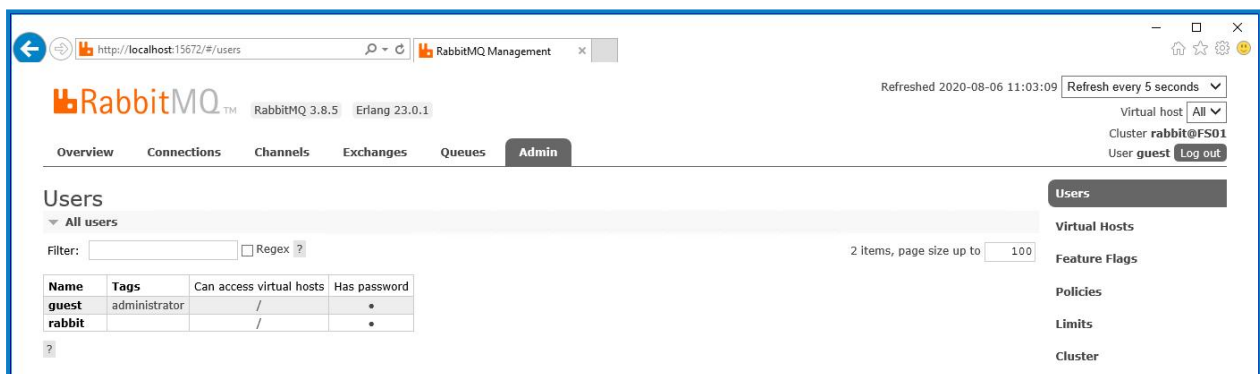
## 12. Click on the username of the user that you just created.



13. Click **Set Permission** to allocate the default permissions.



14. Select the **Admin** tab at the top and check that the permissions have been set properly as shown below.



This account has no Management Console access, so using the credentials you have just created will not enable any access.

This is a generic setup and base install of a RabbitMQ Message Broker service. It is recommended that the default passwords are changed and any security requirements such as applying SSL Certificates are completed by your IT department.

It is recommended that you create a new administrator account and remove the default guest account. Leaving the default guest account available may present a security risk.

## Check RabbitMQ Message Broker connectivity


Launch a browser and type the following URL: `http://<Message Broker Hostname>:15672`

The login page for RabbitMQ Management Console should display.

You will not be able to log into the Management Console as the guest account is restricted to local access only and the account you created is not authorized to access the management console.

If the console does not appear, restart the RabbitMQ service. If the console still does not appear, see [Troubleshoot a Hub installation on page 43](#).

## Install and configure the web server

 Before installing the Hub web server, ensure you have read the information in [Preparation on page 5](#).

Install and configure the web server ensuring that the system can communicate with the RabbitMQ Message Broker.

The process consists of the following steps:

1. [Install IIS](#)
2. [Configure SSL Certificates](#)
3. [Install the .NET Core components](#)
4. [Install Blue Prism Hub](#)

### Install IIS

The system requires IIS Web Server and the .NET Core components to be installed.

It is important that IIS is installed prior to installing the .NET Core components and Blue Prism Hub. The IIS features and roles are automatically installed as part of the Blue Prism Hub installation. See the [online help](#) for a complete list of features and roles .

#### Scripted installation

Run the command below using the PowerShell command prompt:

```
Install-WindowsFeature -name Web-Server -computerName localhost
```

### Configure SSL certificates

During the installation process you will be asked for the SSL certificates for the websites that are being set up. Depending on your infrastructure and IT organization security requirements, this could be an internally created SSL certificate or a purchased certificate to protect the websites.

The installer can be run without the certificates being present, though for the sites to operate, the bindings in the IIS websites will need to have valid SSL certificates present.

The table below details the required SSL certificates.

Website in IIS	Default URL (example only)
Websites with a user interface for use by end-users	
Blue Prism - IMS	https://ims.local
Blue Prism - Hub	https://hub.local
Websites for use by the application only (services)	
Blue Prism - Email Sender	https://email.local
Blue Prism - Audit Service	https://audit.local
Blue Prism - File Service	https://file.local

#### Self-signed certificates

Self-signed certificates can be used but are only recommended for Proof of Concept (POC), Proof of Value (POV) and Development environments. For production environments, use certificates from your organization's approved certificate authority. It is recommended that you contact your IT Security team to

check what their requirements are.

To generate a self-signed certificate:

1. Run PowerShell as an administrator and use the following command, replacing `[Website]` and `[ExpiryYears]` with appropriate values:

```
New-SelfSignedCertificate -CertStoreLocation Cert:\LocalMachine\My -DnsName "[Website].local" -FriendlyName "MySiteCert[Website]" -NotAfter (Get-Date).AddYears([ExpiryYears])
```

For example:

```
New-SelfSignedCertificate -CertStoreLocation Cert:\LocalMachine\My -DnsName "ims.local" -FriendlyName "MySiteCertIMS" -NotAfter (Get-Date).AddYears(10)
```

This example creates a self-signed certificate called *MySiteCertIMS* in the Personal Certificates store, with the Subject *ims.local* and is valid for 10 years from the point of creation.

```
Administrator: Windows PowerShell
Windows PowerShell
Copyright (c) Microsoft Corporation. All rights reserved.

Try the new cross-platform PowerShell https://aka.ms/pscore6

PS C:\WINDOWS\system32> New-SelfSignedCertificate -CertStoreLocation Cert:\LocalMachine\My -DnsName "ims.local" -FriendlyName "MySiteCertIMS" -NotAfter (Get-Date).AddYears(10)

PSParentPath: Microsoft.PowerShell.Security\Certificate::LocalMachine\My

Thumbprint                               Subject
-----
B56A10A4792784D73C2756256BEFC075D8E63919  CN=ims.local
```

2. Open the Manage Computer Certificates application on your web server (type **manage computer** into the search bar).
3. Copy and paste the certificate from Personal > Certificates to Trusted Root Certification > Certificates.

Issued To	Issued By	Expiration Date	Intended Purposes	Friendly Name
1b7410fd-9841-41f7-99ba-7284...	39a68ba3-f4e5-4e04-bc48-bd6770...	6/29/2120	<All>	<None>
1cc95ffb-3da0-49cd-8995-f8057...	39a68ba3-f4e5-4e04-bc48-bd6770...	11/27/2119	<All>	<None>
ca70b1dc-1fa7-454d-bd71-43bf...	39a68ba3-f4e5-4e04-bc48-bd6770...	6/15/2120	<All>	<None>
ims.local	ims.local	4/12/2031	Client Authentication...	MySiteCertIMS

4. Repeat this process for each website.

## Scripted creation of self-signed certificates

This process is not recommended for production environments.

Run the following PowerShell commands:

```
New-SelfSignedCertificate -CertStoreLocation Cert:\LocalMachine\My -DnsName "ims.local" -FriendlyName "MySiteCertIMS" -NotAfter (Get-Date).AddYears(10)
New-SelfSignedCertificate -CertStoreLocation Cert:\LocalMachine\My -DnsName "hub.local" -FriendlyName "MySiteCertHub" -NotAfter (Get-Date).AddYears(10)
New-SelfSignedCertificate -CertStoreLocation Cert:\LocalMachine\My -DnsName "email.local" -FriendlyName "MySiteCertEmail" -NotAfter (Get-Date).AddYears(10)
New-SelfSignedCertificate -CertStoreLocation Cert:\LocalMachine\My -DnsName "audit.local" -FriendlyName "MySiteCertAudit" -NotAfter (Get-Date).AddYears(10)
New-SelfSignedCertificate -CertStoreLocation Cert:\LocalMachine\My -DnsName "file.local" -
```

```
FriendlyName "MySiteCertFile" -NotAfter (Get-Date).AddYears(10)
```

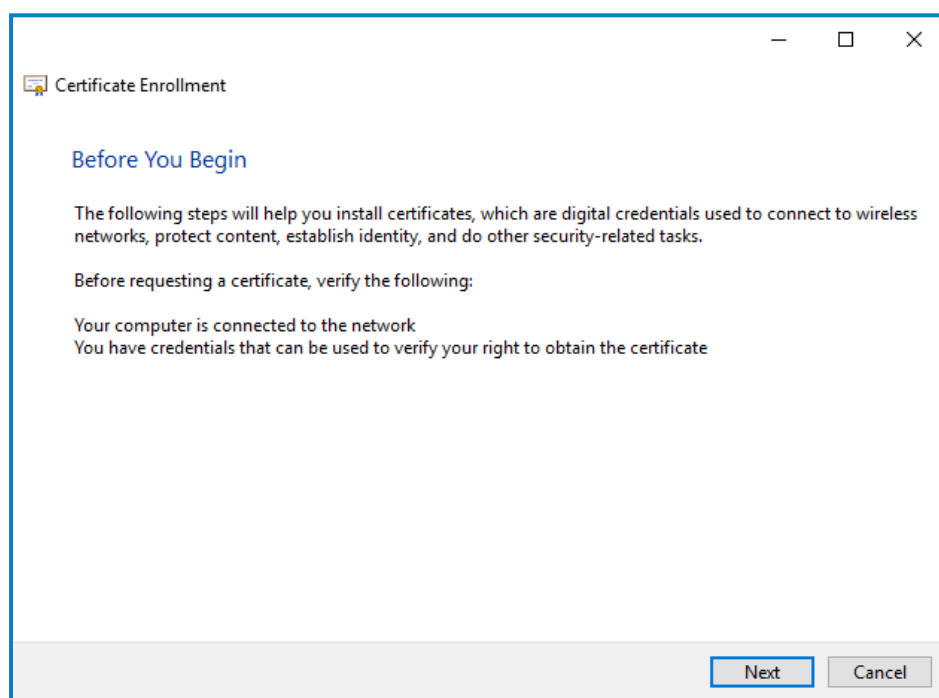
Once created, open the Local Machine certificate manager (certlm) and copy and paste the certificates into the trusted root certificate store.

### Create an offline certificate request

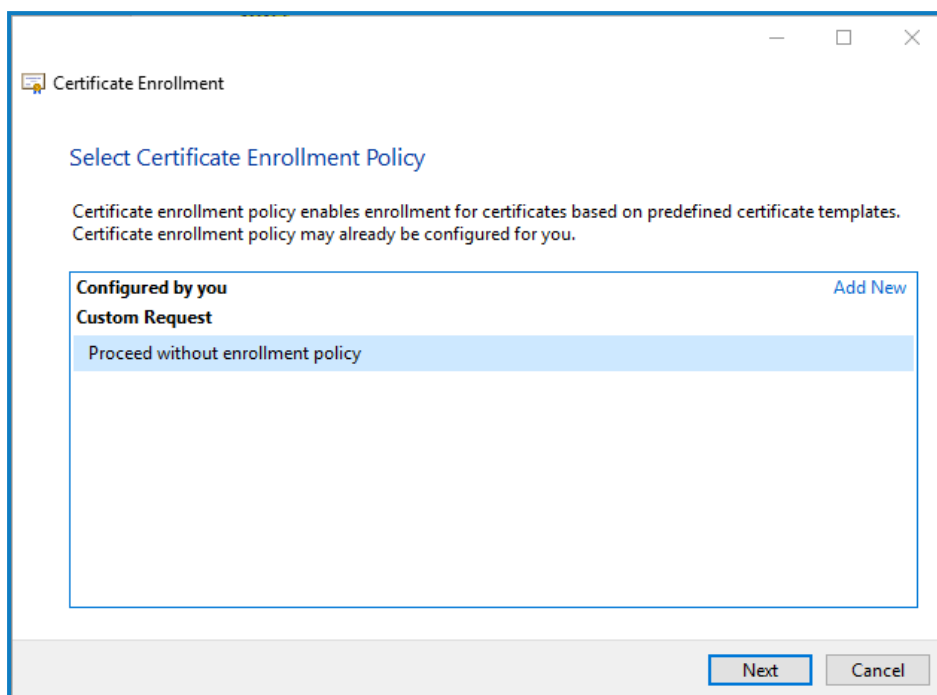
To create an offline certificate request, for each certificate follow this procedure:

1. Open the Manage Computer Certificates application on your web server (type **managed computer** into the search bar).
2. Right-click **Personal** > **Certificates** and select **All Tasks** > **Advanced Operations** > **Create Custom Request** from the shortcut menu.

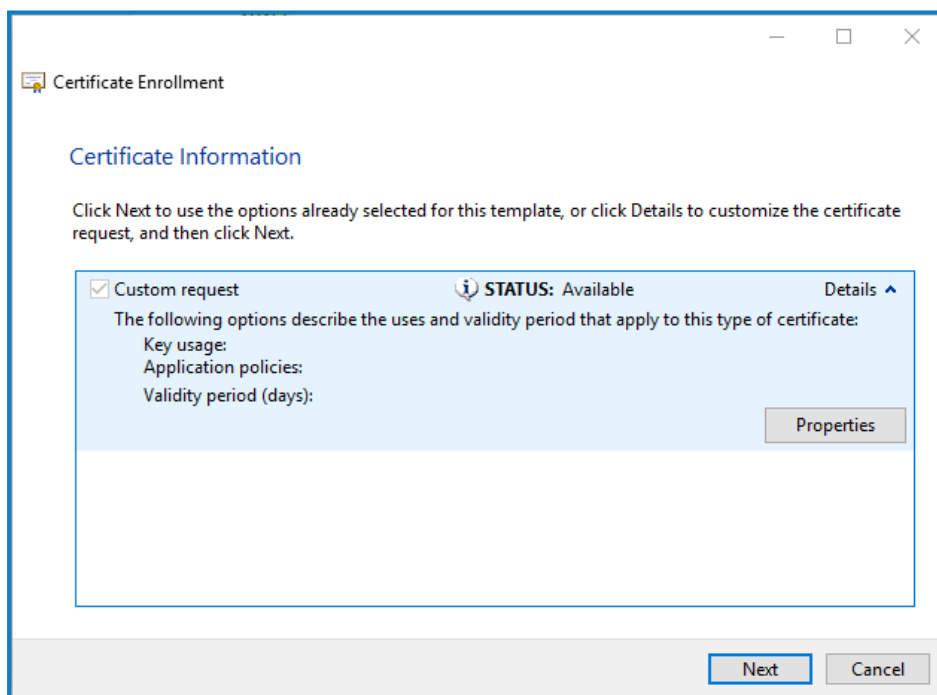
The Certificate Enrollment wizard displays.



3. Click **Next**.



4. Select **Proceed without enrollment policy** and click **Next**.
5. On the Custom request screen, click **Next**.
6. On the Certificate Information screen, click the **Details** drop-down and click **Properties**.



7. On the General tab in the Certificate Properties dialog, enter a friendly name and description based on the website this certificate will be applied to.



8. On the Subject tab change the subject name type to **Common name**, enter the website URL in the **Value** field and click **Add**.

The CN (common name) will display in the right-hand panel.

The screenshot shows the 'Certificate Properties' dialog box with the 'Subject' tab selected. The dialog has four tabs: 'General', 'Subject', 'Extensions', and 'Private Key'. The 'Subject' tab contains the following elements:

- A descriptive text: "The subject of a certificate is the user or computer to which the certificate is issued. You can enter information about the types of subject name and alternative name values that can be used in a certificate."
- A section titled "Subject of certificate" with the subtitle "The user or computer that is receiving the certificate".
- A "Subject name:" section with a "Type:" dropdown set to "Common name" and a "Value:" text field.
- An "Add >" button next to the "Value:" field.
- A "< Remove" button below the "Add >" button.
- A list box on the right showing "CN=https://ims.local".
- An "Alternative name:" section with a "Type:" dropdown set to "Directory name" and a "Value:" text field.
- An "Add >" button next to the "Value:" field.
- A "< Remove" button below the "Add >" button.
- A list box on the right (currently empty).
- At the bottom, there are "OK", "Cancel", and "Apply" buttons.

9. On the Extensions tab, click **Extended Key Usage**, select **Server Authentication** and click **Add**.
10. On the Private Key tab, click **Key options**, select a key size of your choice and select **Make private key exportable**.
11. Still on the Private Key tab, click **Hash Algorithm** and select a suitable Hash (optional).
12. Click **OK**.
- You are returned to the Certificate Enrollment screen.
13. Click **Next**.
14. Add a file name and path and click **Finish**.

After creating your certificate request, you will need to submit it to a Certificate Authority so they can process your request and issue a certificate. The certificate request is a text file. Usually, you are required to copy the text from the file and enter it into an online submission form on the Certificate Authority website. You will need to contact your Certificate Authority directly for instructions on the process for submitting your certificate request.

## Install .NET Core Components

The following .NET Core components must be downloaded and installed:

- .NET Core 3.1.2 Windows Server Hosting  
<https://dotnet.microsoft.com/download/dotnet-core/thank-you/runtime-aspnetcore-3.1.2-windows-hosting-bundle-installer>
- .NET Core 3.1.2 Windows Desktop Runtime  
<https://dotnet.microsoft.com/download/dotnet-core/thank-you/runtime-desktop-3.1.2-windows-x64-installer>
- .NET Core SDK 3.1.300  
<https://dotnet.microsoft.com/download/dotnet-core/thank-you/sdk-3.1.300-windows-x64-installer>
- Visual C++ Redistributable 2012 (x64)  
[https://download.microsoft.com/download/1/6/B/16B06F60-3B20-4FF2-B699-5E9B7962F9AE/VSU\\_4/vcredist\\_x64.exe](https://download.microsoft.com/download/1/6/B/16B06F60-3B20-4FF2-B699-5E9B7962F9AE/VSU_4/vcredist_x64.exe)
- .NET Framework 4.7.2  
<https://dotnet.microsoft.com/download/dotnet-framework/thank-you/net472-web-installer>

### Scripted installation

To install the .NET dependencies, run the commands below using the PowerShell command prompt, updating C:\temp to the appropriate location as required:

```
start-process "C:\temp\dotnet-hosting-3.1.2-win.exe" /q -wait
start-process "C:\temp\windowsdesktop-runtime-3.1.2-win-x64.exe" /q -wait
start-process "C:\temp\dotnet-sdk-3.1.300-win-x64.exe" /q -wait
start-process "C:\temp\vcredist_x64.exe" /q -wait
start-process "C:\temp\NDP472-KB4054531-Web.exe" /q -wait
```

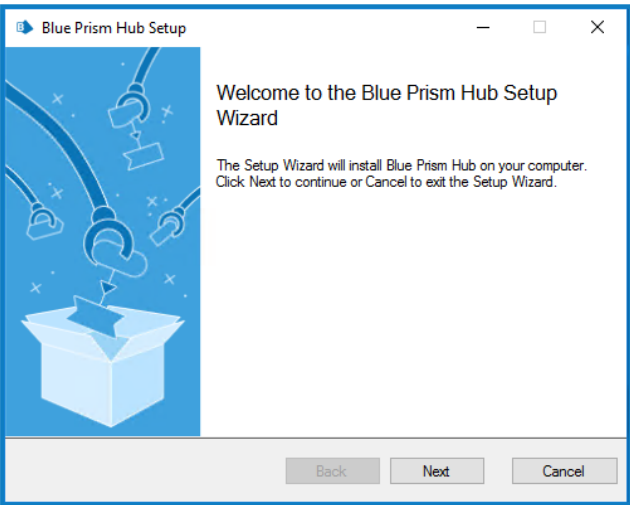
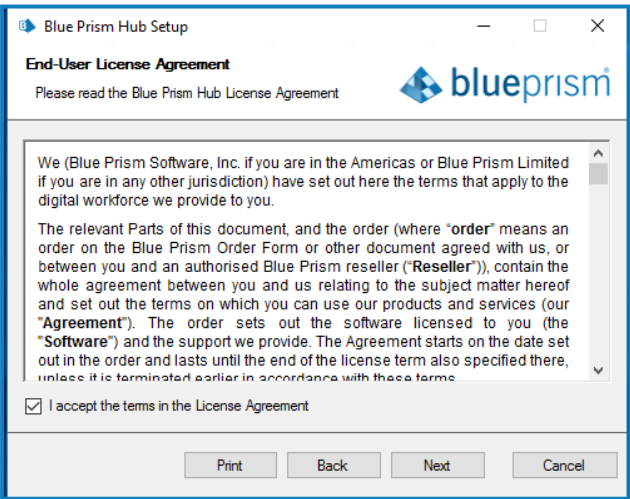
## Install Blue Prism Hub

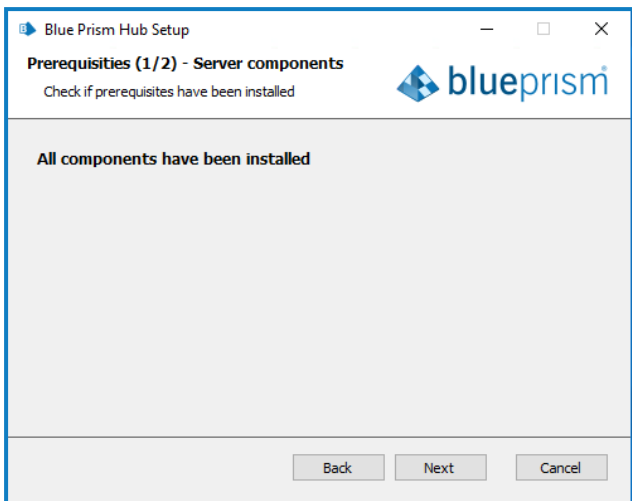
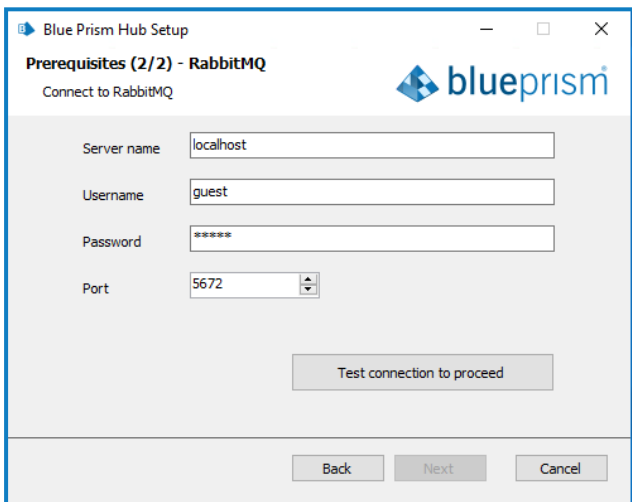

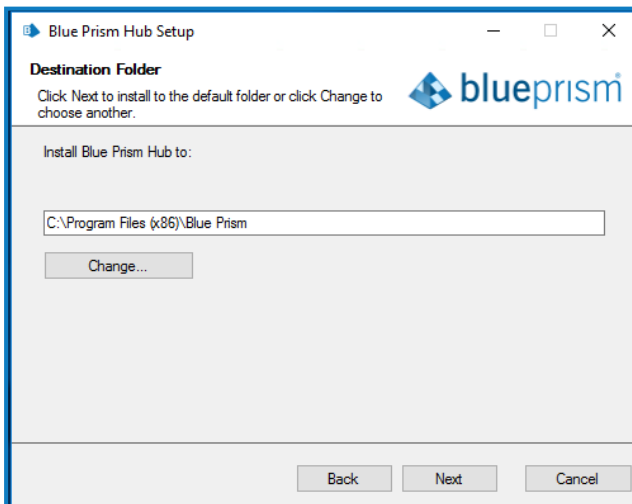
Before you install Blue Prism Hub:

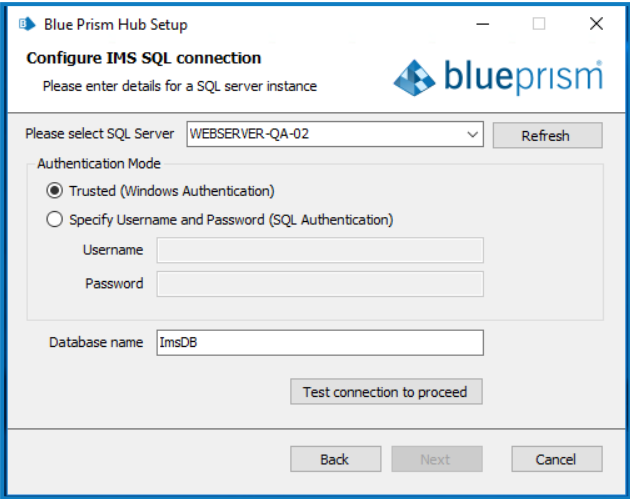

- If you are reinstalling Blue Prism Hub after previously using and removing it, and the same database names are to be used, it is recommended that the databases should be cleared of any old data before re-installing.

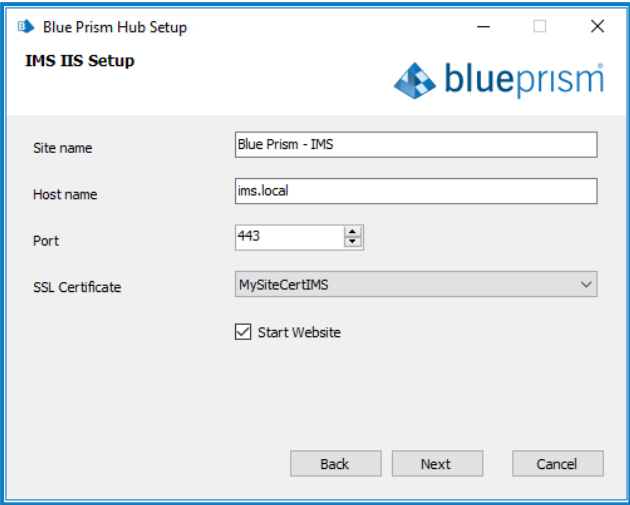

The steps below detail the process for installing the Blue Prism Hub software. This includes the Identify Management System (IMS), Hub, and other associated services. The installation process will create any new databases that are required.

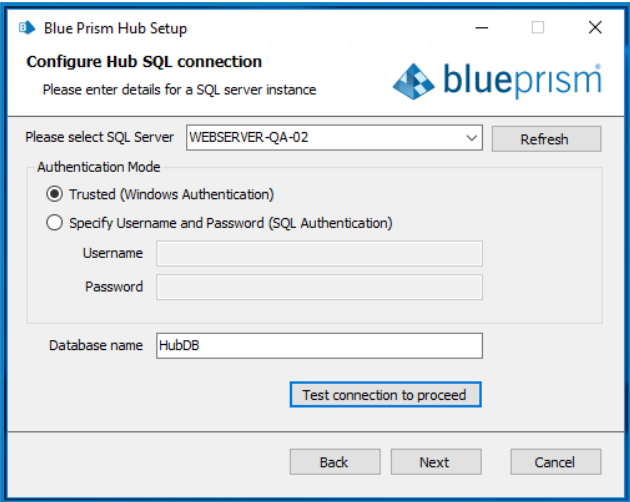

Download and run the Blue Prism Hub installer, available from the [Blue Prism Portal](#), and progress through the installer as shown below. The installer must be run with administrator rights.

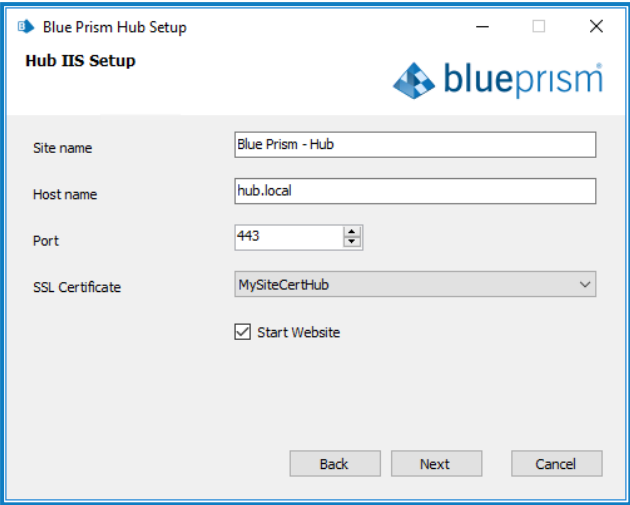

Step	Installer page	Details
1	 <p>The screenshot shows the 'Blue Prism Hub Setup' window. It features a blue background with a graphic of a hand placing a puzzle piece into a box. The text reads: 'Welcome to the Blue Prism Hub Setup Wizard. The Setup Wizard will install Blue Prism Hub on your computer. Click Next to continue or Cancel to exit the Setup Wizard.' At the bottom are 'Back', 'Next', and 'Cancel' buttons.</p>	<b>Welcome</b>
2	 <p>The screenshot shows the 'Blue Prism Hub Setup' window displaying the 'End-User License Agreement'. It includes the Blue Prism logo and a scrollable text area with the following text: 'We (Blue Prism Software, Inc. if you are in the Americas or Blue Prism Limited if you are in any other jurisdiction) have set out here the terms that apply to the digital workforce we provide to you. The relevant Parts of this document, and the order (where "order" means an order on the Blue Prism Order Form or other document agreed with us, or between you and an authorised Blue Prism reseller ("Reseller")), contain the whole agreement between you and us relating to the subject matter hereof and set out the terms on which you can use our products and services (our "Agreement"). The order sets out the software licensed to you (the "Software") and the support we provide. The Agreement starts on the date set out in the order and lasts until the end of the license term also specified there, unless it is terminated earlier in accordance with these terms.' Below the text is a checked checkbox labeled 'I accept the terms in the License Agreement'. At the bottom are 'Print', 'Back', 'Next', and 'Cancel' buttons.</p>	<b>License agreement</b> Read the End-User License Agreement and if you agree to the terms, select the check box.

Step	Installer page	Details
3		<b>Prerequisites 1 - Server components</b> <p>The installer checks that the prerequisites have been installed. Those that are not installed are identified. You cannot proceed until all the prerequisites are installed.</p> <p>If there are uninstalled prerequisites, cancel the installer and install the missing components before restarting the installer. Otherwise, proceed with the installation.</p>
4		<b>Prerequisites 2 - RabbitMQ</b> <p>Enter the server name or IP address of the Message Broker server and the credentials of the user you created.</p> <div style="border: 1px solid #0070C0; padding: 5px; margin-top: 10px;"> <p> The default message queuing port is 5672. This should only be changed if the default ports have been changed by your IT support organization.</p> </div> <p>Click <b>Test connection</b> to verify connectivity. A notification will display the result of the test. You will only be able to move on to the next step if the test is successful. If the test failed, see <a href="#">Troubleshoot a Hub installation on page 43</a> for further details.</p>
5		<b>Destination folder</b> <p>Specify the required installation folder. The default location is C:\Program Files (x86)\Blue Prism, but you can choose your own using the <b>Change</b> button.</p>

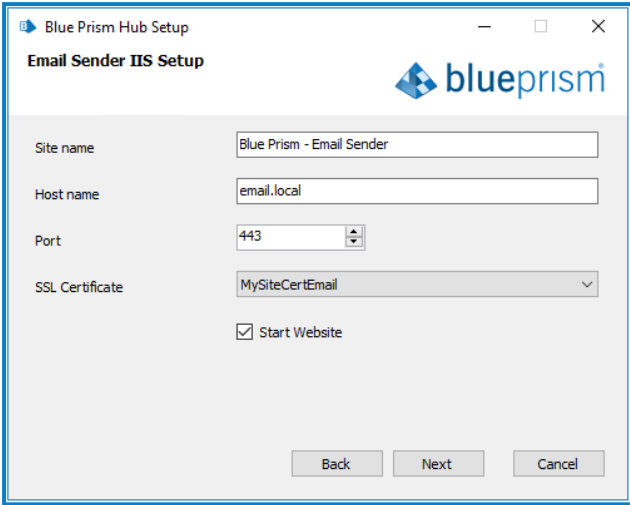

Step	Installer page	Details
6		<h3>IMS SQL connection</h3> <p>Configure the settings for the IMS database by providing the SQL Server host name or IP address, and the credentials for the account to create the database:</p> <ul style="list-style-type: none"> <li>• If <b>Windows Authentication</b> is selected, the account must have the appropriate permissions. See <a href="#">Windows Authentication on page 44</a> for further information.</li> <li>• If <b>SQL Authentication</b> is selected, enter the username and password.</li> </ul> <div style="border: 1px solid red; padding: 10px; margin: 10px 0;"> <p> You must ensure that your database password does not contain an equals sign (=), semi-colon (;), or speech marks ("). These characters are not supported, and will lead to issues when trying to connect to the database.</p> </div> <p>Click <b>Test connection to proceed</b> to test the SQL credentials and verify connectivity. A notification will display the result of the test. You will only be able to move on to the next step if the test is successful. If the test failed, see <a href="#">Troubleshoot a Hub installation on page 43</a> for further details.</p>

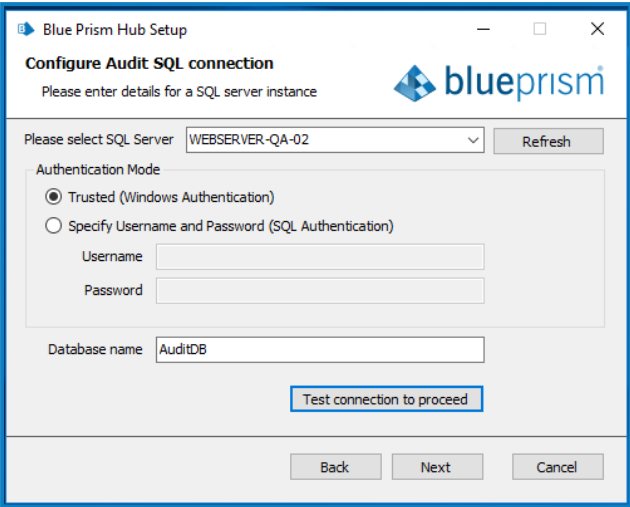

Step	Installer page	Details
7		<h3>IMS IIS setup</h3> <p>Configure IIS for the IMS website. You need to:</p> <ul style="list-style-type: none"> <li>• Enter a site name.</li> <li>• Enter a host name in lowercase characters - This will be used as the URL for the site. The first part of the default host name must not be changed. You can only change the <i>.local</i> part of the host name. Ensure that you consider your DNS and Domain structure when choosing a host name.</li> </ul> <div style="border: 1px solid red; padding: 5px; margin: 10px 0;">  The use of uppercase characters in URLs is not supported. </div> <ul style="list-style-type: none"> <li>• Enter the port number.</li> <li>• Select the appropriate SSL certificate.</li> <li>• Leave <b>Start Website</b> selected, unless you do not want the website to automatically start at the end of the installation.</li> </ul>

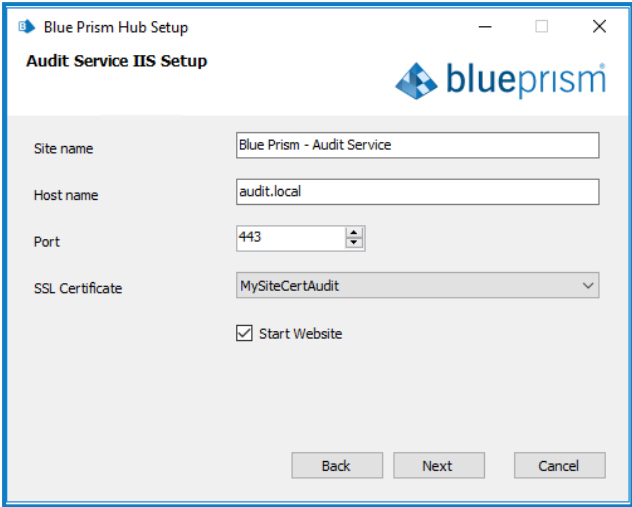

Step	Installer page	Details
8		<h3>Hub SQL connection</h3> <p>Configure the settings for the Hub database by providing the SQL Server host name or IP address, and the credentials for the account to create the database:</p> <ul style="list-style-type: none"><li>• If <b>Windows Authentication</b> is selected, the account must have the appropriate permissions. See <a href="#">Windows Authentication on page 44</a> for further information.</li><li>• If <b>SQL Authentication</b> is selected, enter the username and password.</li></ul> <div> You must ensure that your database password does not contain an equals sign (=), semi-colon (;), or speech marks ("). These characters are not supported, and will lead to issues when trying to connect to the database.</div> <p>The database name can be left as the default value or changed as required.</p> <p>Click <b>Test connection to proceed</b> to test the SQL credentials and verify connectivity.</p> <p>A notification will display the result of the test. You will only be able to move on to the next step if the test is successful. If the test failed, see <a href="#">Troubleshoot a Hub installation on page 43</a> for further details.</p>

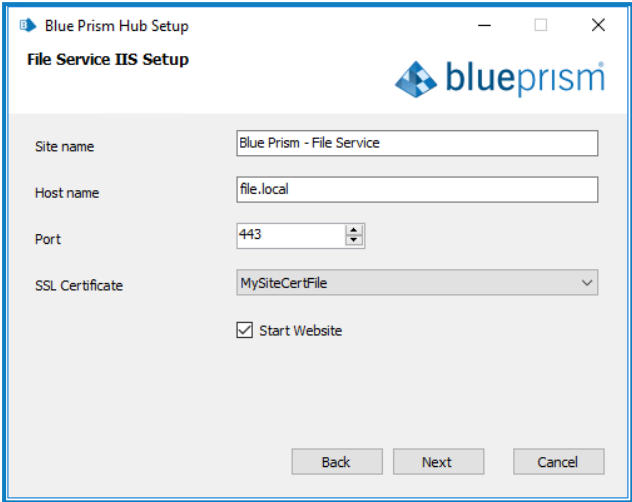

Step	Installer page	Details
9		<h3>Hub IIS setup</h3> <p>Configure the Hub website. You need to:</p> <ul style="list-style-type: none"><li>• Enter a site name.</li><li>• Enter a host name in lowercase characters - This will be used as the URL for the site. The first part of the default host name must not be changed. You can only change the <i>.local</i> part of the host name. Ensure that you consider your DNS and Domain structure when choosing a host name.</li></ul> <div> The use of uppercase characters in URLs is not supported.</div> <ul style="list-style-type: none"><li>• Enter the port number.</li><li>• Select the appropriate SSL certificate.</li><li>• Leave <b>Start Website</b> selected, unless you do not want the website to automatically start at the end of the installation.</li></ul>

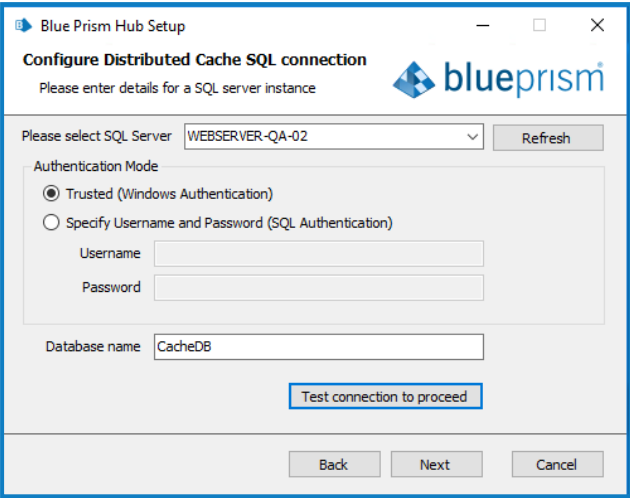

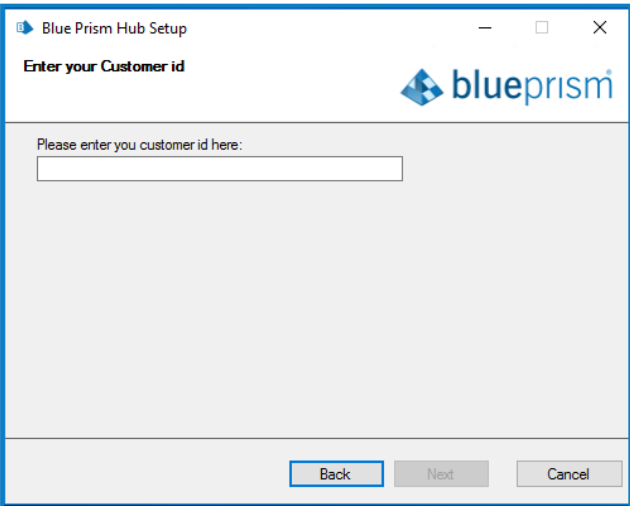


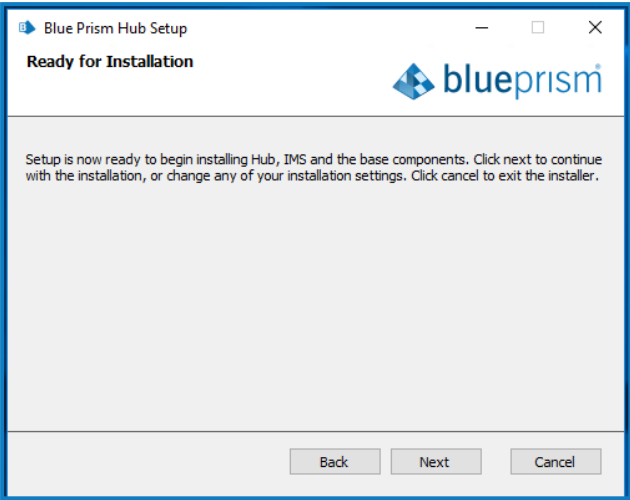
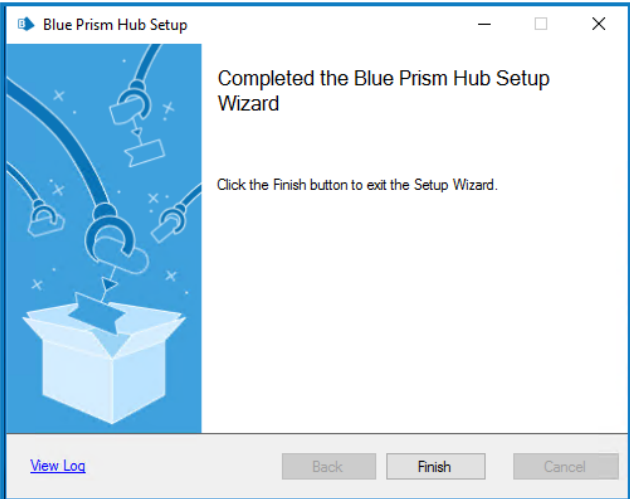
Step	Installer page	Details
10		<h3>Email Sender IIS setup</h3> <p>Configure the Email Sender website. You need to:</p> <ul style="list-style-type: none"><li>• Enter a site name.</li><li>• Enter a host name in lowercase characters - This will be used as the URL for the site. The first part of the default host name must not be changed. You can only change the <i>.local</i> part of the host name. Ensure that you consider your DNS and Domain structure when choosing a host name.</li></ul> <div> The use of uppercase characters in URLs is not supported.</div> <ul style="list-style-type: none"><li>• Enter the port number.</li><li>• Select the appropriate SSL certificate.</li><li>• Leave <b>Start Website</b> selected, unless you do not want the website to automatically start at the end of the installation.</li></ul>

Step	Installer page	Details
11		<h3>Audit SQL connection configuration</h3> <p>Configure the settings for the Audit database by providing the SQL Server host name or IP address, and the credentials for the account to create the database:</p> <ul style="list-style-type: none"><li>• If <b>Windows Authentication</b> is selected, the account must have the appropriate permissions. See <a href="#">Windows Authentication on page 44</a> for further information.</li><li>• If <b>SQL Authentication</b> is selected, enter the username and password.</li></ul> <div> You must ensure that your database password does not contain an equals sign (=), semi-colon (;), or speech marks ("). These characters are not supported, and will lead to issues when trying to connect to the database.</div> <p>The database name can be left as the default value or changed as required.</p> <p>Click <b>Test connection to proceed</b> to test the SQL credentials and verify connectivity.</p> <p>A notification will display the result of the test. You will only be able to move on to the next step if the test is successful. If the test failed, see <a href="#">Troubleshoot a Hub installation on page 43</a> for further details.</p>

Step	Installer page	Details
12		<h3>Audit Service IIS setup</h3> <p>Configure the Audit Service website. You need to:</p> <ul style="list-style-type: none"><li>• Enter a site name.</li><li>• Enter a host name in lowercase characters - This will be used as the URL for the site. The first part of the default host name must not be changed. You can only change the <i>.local</i> part of the host name. Ensure that you consider your DNS and Domain structure when choosing a host name.</li></ul> <div> The use of uppercase characters in URLs is not supported.</div> <ul style="list-style-type: none"><li>• Enter the port number.</li><li>• Select the appropriate SSL certificate.</li><li>• Leave <b>Start Website</b> selected, unless you do not want the website to automatically start at the end of the installation.</li></ul>


Step	Installer page	Details
13		<h3>File Service IIS setup</h3> <p>Configure the File Service website. You need to:</p> <ul style="list-style-type: none"><li>• Enter a site name.</li><li>• Enter a host name in lowercase characters - This will be used as the URL for the site. The first part of the default host name must not be changed. You can only change the <i>.local</i> part of the host name. Ensure that you consider your DNS and Domain structure when choosing a host name.</li></ul> <div> The use of uppercase characters in URLs is not supported.</div> <ul style="list-style-type: none"><li>• Enter the port number.</li><li>• Select the appropriate SSL certificate.</li><li>• Leave <b>Start Website</b> selected, unless you do not want the website to automatically start at the end of the installation.</li></ul>


Step	Installer page	Details
14		<p><b>Distributed Cache SQL connection</b></p> <p>Configure the settings for the Cache database by providing the SQL Server host name or IP address, and the credentials for the account to create the database:</p> <ul style="list-style-type: none"> <li>• If <b>Windows Authentication</b> is selected, the account must have the appropriate permissions. See <a href="#">Windows Authentication on page 44</a> for further information.</li> <li>• If <b>SQL Authentication</b> is selected, enter the username and password.</li> </ul> <div style="border: 1px solid red; padding: 10px; margin-top: 10px;"> <p> You must ensure that your database password does not contain an equals sign (=), semi-colon (;), or speech marks ("). These characters are not supported, and will lead to issues when trying to connect to the database.</p> </div> <p>The database name can be left as the default value or changed as required.</p> <p>Click <b>Test connection to proceed</b> to test the SQL credentials and verify connectivity.</p> <p>A notification will display the result of the test. You will only be able to move on to the next step if the test is successful. If the test failed, see <a href="#">Troubleshoot a Hub installation on page 43</a> for further details.</p>
15		<p><b>Enter your Customer Id</b></p> <p>Enter your customer identifier. This identifier is supplied to you by Blue Prism when you receive your product license for ALM or Interact.</p> <p>If you have not purchased a licensed plugin, you can enter your own value.</p>

Step	Installer page	Details
16		<b>Ready for Installation</b> Click <b>Next</b> to install Hub.
17		<b>Installation complete</b> If the installation fails, the <b>View Log</b> option gives details of the error that was encountered. For more information, see <a href="#">Troubleshoot a Hub installation on page 43</a> .

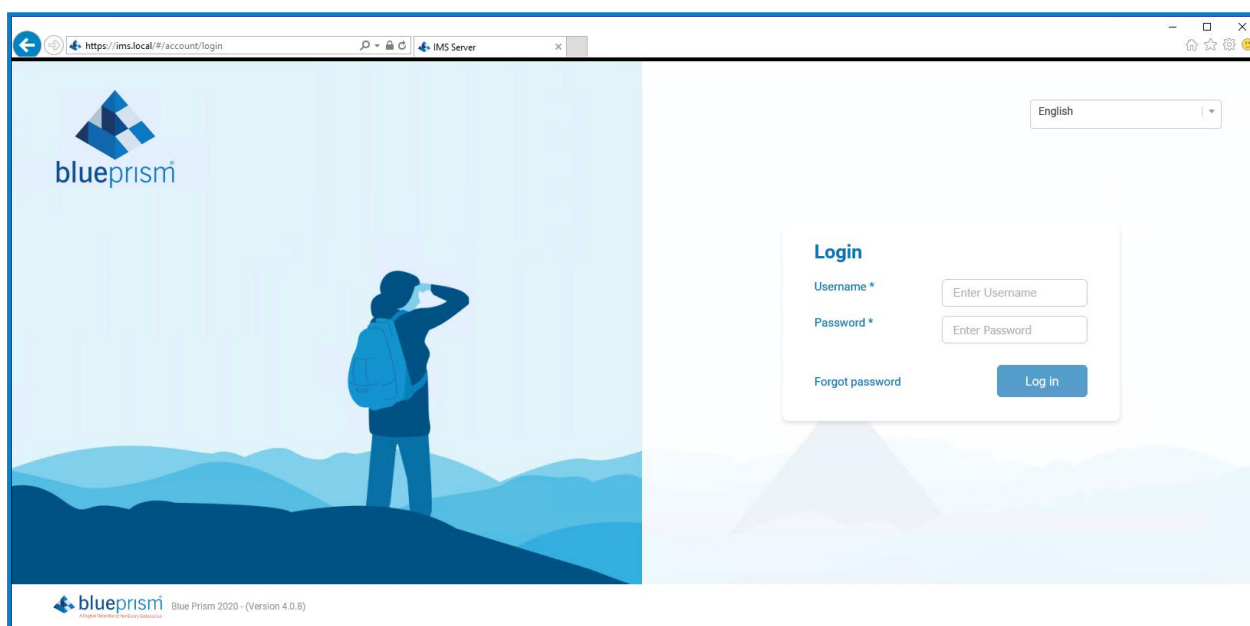
## Initial Hub configuration

You can now log in for the first time and carry out some system-wide configuration.

 When you open the login page for IMS, localization settings are automatically applied from your web browser. The login page and Hub display in the language most compatible with the language settings configured in the browser. If the language selected in your browser settings is not supported, English is used as the default. If required, you can manually change the language you want to use from the drop-down list on the login page.


 To watch the Hub installation and configuration process, see our [Blue Prism Hub installation video](#).

1. Launch a browser and go to the IMS website, in our example: <https://ims.local>

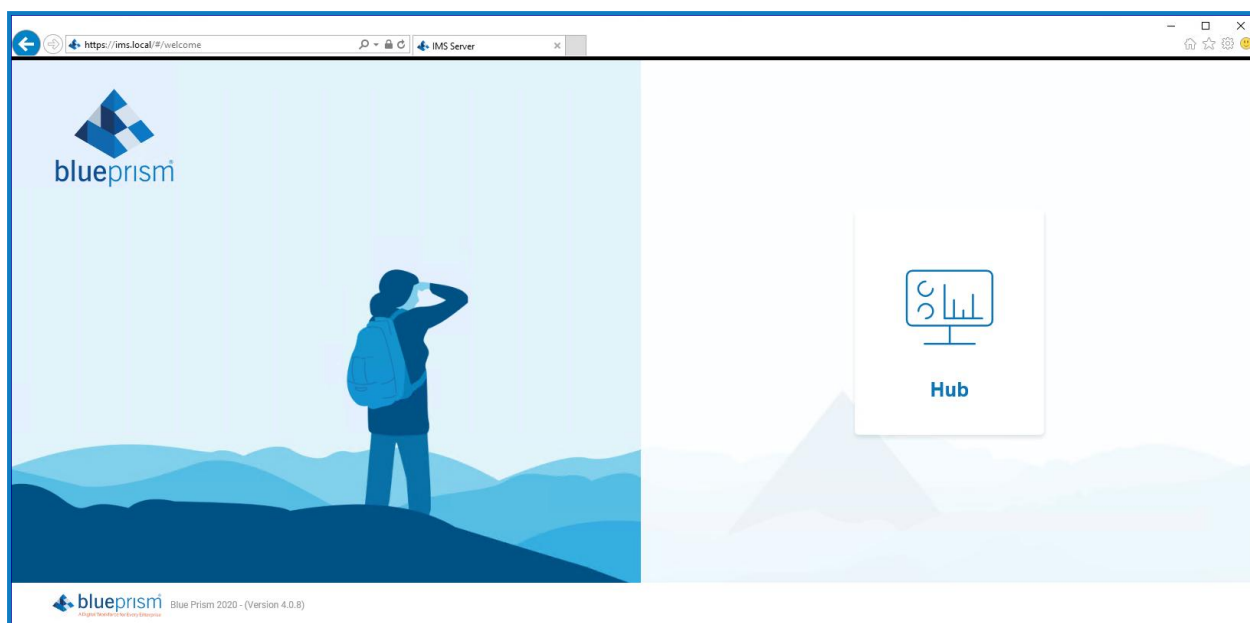


2. Log in using the default credentials.

- **Username:** admin
- **Password:** Qq1234!!

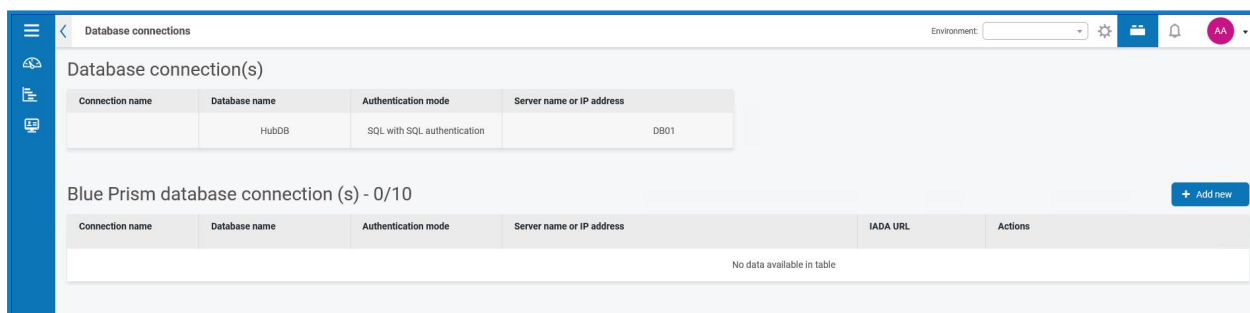
 For information about how to change the default password and other settings see the [Hub User Guide](#).

3. Click **Hub** to launch the Hub website.



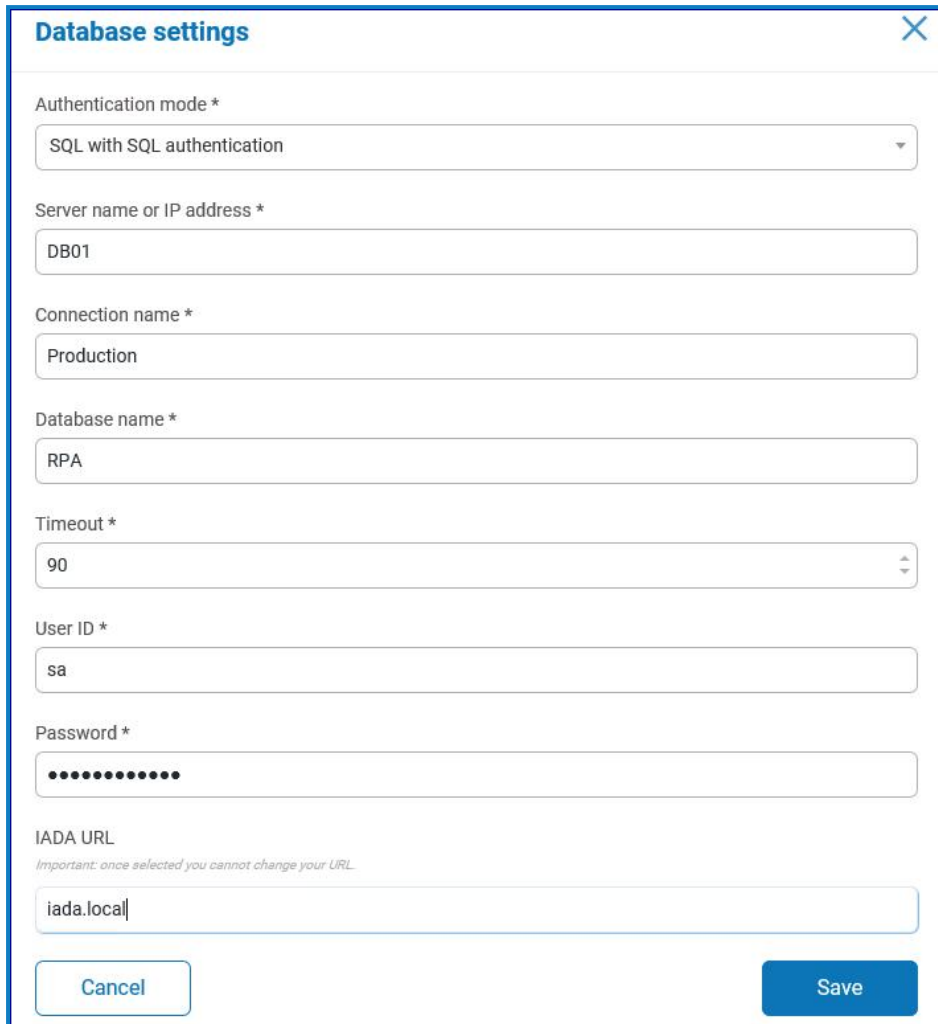
## Database settings


1. Click on the settings cog and select **Database Settings**.



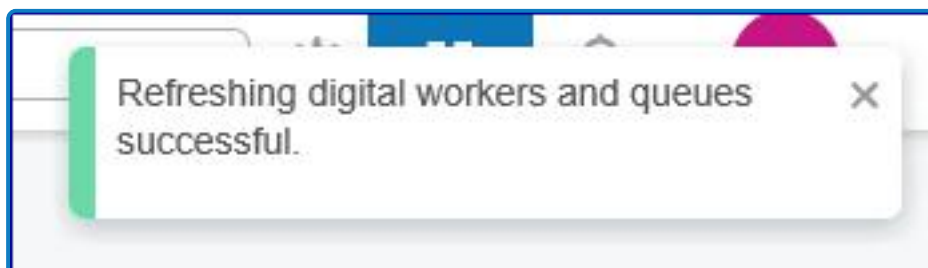


2. Click **Add New** and enter the details of the Blue Prism RPA database as illustrated below.



 The Timeout value is in seconds.

3. Click **Save** to save your data.
4. To test the settings, go back into the Database settings and click on the action menu (three dots) alongside the configured database and select **Refresh**. If operational the following message displays in the top right corner of the Hub user interface, which verifies the installation. If the message is not displayed, see [Troubleshoot a Hub installation on page 43](#) for more information.



## Email settings

It is recommended that the SMTP setup is completed. This enables system emails to be sent, such as forgotten password emails.

The email address used to send emails is configured when setting up your profile.

To check the email address, click on the settings cog and select **Email Settings**.

### Email settings

If you need help configuring your SMTP settings, please speak to your IT team in the first instance.

SMTP host *	Port *
<input type="text" value="Enter SMTP host"/>	<input type="text" value="Enter Port"/>
Sender email *	Encryption *
<input type="text" value="Enter Sender email"/>	<input type="text" value="None"/>
<input type="checkbox"/> SMTP authenticate	
Username	Password
<input type="text" value="Enter Username"/>	<input type="text" value="Enter Password"/>
Send test email to	
<input type="text" value="some@mail.com"/>	
<input type="button" value="Save"/>	

If the email settings cannot be successfully configured, it is likely that the Message Broker server cannot be reached, see [Troubleshoot a Hub installation on the next page](#) for more information.



For more information about configuring email settings, see [Hub User Guide](#).

## Troubleshoot a Hub installation


The following sections seek to provide guidance if specific issues are experienced either during the install or when verifying that the installation has been successful.

### Message Broker connectivity

To verify the connectivity between the Web Server and the Message Broker check that the RabbitMQ Management Console is accessible through a web browser.

There could be several reasons that connectivity fails:

- Verify Network Connectivity - Ensure that all relevant devices are connected to the same network and are able to communicate.
- Firewall - Check that the firewalls on the servers themselves or within the network are not preventing communication.

 The RabbitMQ Management Console communicates, by default, on port 15672. The message broker queues use a different port, 5672, by default. The firewall should be checked for TCP access on all ports. This is especially true if the IT organization has specified non-default ports.

### Database connectivity

The **Test connection to proceed** button within the installer checks the following:

- If the database exists:
  - That it can be connected to.
  - That the account has the rights to read, write and edit the database.
- If the database does not exist:
  - That the account has the right to create the database.

If these requirements cannot be met, the installation will stop.

There are a number of checks that can be performed when a connection cannot be made to a SQL Server over the LAN:

- Verify Network Connectivity - Ensure that all relevant devices are connected to the same network and are able to communicate.
- SQL Credentials - Verify the SQL credentials and that the user has appropriate permissions on the SQL Server.
- Firewall - Check that the firewalls on the servers themselves or within the network are not preventing communication.
- SQL Browser Service - Ensure the SQL Browser Service on the SQL Server is enabled to allow for a SQL Instance to be found. For SQL Server Express this service is typically disabled by default.
- Enabling TCP/IP Connectivity - Where remote connectivity is required for SQL, check that TCP/IP connectivity is enabled for the SQL Instance. Microsoft provide articles specific to each version of SQL that provide instructions to Enable the TCP/IP Network Protocol for SQL Server.

If when running the installer the installation process fails with database errors, see below, then test that the Web Server has a SQL connectivity to the database. This could be due to any of the reasons potentially listed above.

```
Error Number:53,State:0,Class:20  
Info: CustomAction CreateDatabases returned actual error code 1603 (note this may not be 100% accurate if translation happened inside sandbox)  
Info: Action ended 10:31:13: CreateDatabases. Return value 3.
```

Another potential reason for failure is that the account used to create the databases within the installer has insufficient privileges to create the databases.

Finally, if the installation is a re-installation after a removal of the software. Then if the same database names have been used, the databases need to be cleared of any old data before re-installing.

## Web server

During the installation process the installer will check that all prerequisites are installed. It is recommended that if the prerequisites are not installed, that the installer is canceled, the prerequisites installed, and the installer process restarted.

For further information, see [Prerequisites on page 6](#).

## Starting the IMS website

After completing the installation, if an 'HTTP Error 500.19 on 0x8007000d' displays when starting the IMS website, you will need to repair or reinstall the .NET Core component .NET Core 3.1.2 Windows Server Hosting. The file for this component is dotnet-hosting-3.1.2-win.exe.

## File service

If the File service fails to locate the imagery for IMS and Hub then this is caused by an uninstallation and reinstallation of the Blue Prism products. This issue will not occur for first-time installations.

During the removal process, the databases are not removed and so if the reinstallation uses the same database names then the original paths to the file services and URLs will still be used.

To overcome this, after the removal process has been run, either delete or clean the databases so that any previous paths have been deleted or use alternatives database names during the reinstallation.

## Windows Authentication

The account running the installation must have the relevant SQL Server permissions to carry out the installation - membership in either the sysadmin or dbcreator fixed server roles.

If during the installation process it was chosen to use Windows Authentication, it is recommended that a Windows service account is established with the necessary permissions to execute the tasks and operate during normal operation.

This service account will need not only the ability to perform the SQL database creation process, see [Minimum SQL permissions on page 10](#), and ownership over the IIS Application Pools.

By default, the Application Pools are created with the identity 'ApplicationPoolIdentity'. After the installer has completed the established service account will need to be allocated permissions to manage the Application Pools.

If there are issues with the Audit Service, make sure that the Windows Service Account has access to the Audit Service Listener as well as the Audit Database.

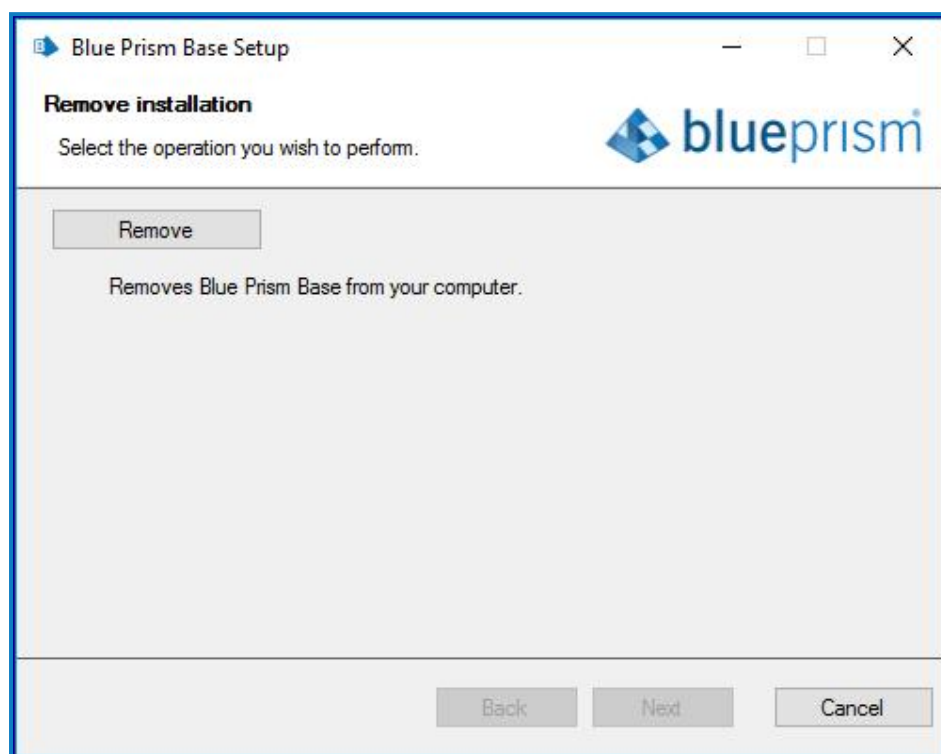
## Not able to configure SMTP settings in Hub

If you are unable to configure SMTP settings in Hub this is normally related to the startup order of the services.

The web server must start up after the RabbitMQ services have all started. If the web server services start before the RabbitMQ service is ready, then going into the SMTP settings in Hub will result in a 'something went wrong' message.

## Uninstall Hub


By clicking on the Blue Prism Hub installer with the Blue Prism components installed, you are prompted to remove the installation.



When removing the installation it will remove the following items:

- IIS websites and Application Pools.
- Services.
- File structure except for top level.

It is important to note that the databases are not removed. This is to allow any potential data to be archived by the organization or used for audit purposes.

 If the installation is repeated again, after a removal, and the same database names are used, then the databases should be cleared of any data prior to re-installation.