



# Click Studios

## Passwordstate

## Installation Instructions

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# 1 System Requirements - General

Passwordstate has the following system requirements:

## Web Server

Your web server which will host the Passwordstate web site can be any of the following Operating System versions:

- Microsoft Windows Server 2008 & IIS 7.0
- Microsoft Windows Server 2008 R2 & IIS 7.5
- Microsoft Windows Server 2012 & IIS 8.0
- Microsoft Windows Server 2012 R2 & IIS 8.5
- Windows 7 & IIS 7.5
- Windows 8 & IIS 8.0
- Windows 10 & IIS 10.0

**Note:** Microsoft **.Net Framework 4.5**, and **PowerShell 3.0 or above** must also be installed on your web server.

## Database Server

You will need to have one of the following supported SQL Server versions installed prior to installing Passwordstate, so Passwordstate can connect to SQL Server and create a database. SQL Server can be installed either on the same web server as Passwordstate, or on any other Windows Server in your environment.

- Microsoft SQL Server 2008
- Microsoft SQL Server 2008 Express
- Microsoft SQL Server 2008 R2
- Microsoft SQL Server 2008 R2 Express
- Microsoft SQL Server 2012
- Microsoft SQL Server 2012 Express
- Microsoft SQL Server 2014
- Microsoft SQL Server 2014 Express
- Microsoft SQL Server 2016
- Microsoft SQL Server 2016 Express

**Note:** If you would like to use the High Availability module of Passwordstate, your distribution and publication databases must reside on SQL Server Standard or above – SQL Express can only act as a subscriber to SQL Server replication.

**Important:** SQL Server must be configured for mixed-mode authentication, so the Passwordstate web site can connect to SQL Server using an SQL Account. **Active Directory Accounts cannot be used to authenticate against the database.**

If you are unsure of how to install SQL Server, the Passwordstate.zip file contains some instructions for installing SQL Server 2016 Express edition.

## Email Server

If you would like to receive emails generated from Passwordstate, you must also have an email server which is capable of sending anonymous SMTP emails, or emails from an authenticated mailbox

## 2 Internet Information Services (IIS) Requirements

When installing Internet Information Services, the following component/roles are required as a minimum. If these IIS roles are not installed, Passwordstate will install them for you.

### Common HTTP Features

- Static Content
- Default Document
- HTTP Errors

### Application Development

- ASP.NET (or ASP.NET 4.5 on Server 2012 and Windows 8)
- .NET Extensibility (or .NET Extensibility 4.5 on Server 2012 and Windows 8)
- ISAPI Extensions
- ISAPI Filters

### Security

- Windows Authentication
- Request Filtering

### Performance

- Static Content Compression



Note: Authentication to the Passwordstate web site can be integrated with your Active Directory domain, or you can use the Forms-Based Authentication which doesn't rely on Active Directory at all. During the initial install of Passwordstate, you will be asked which authentication option you would like to use.

### 3 Password Resets and Remote Session Launcher Requirements

#### Password Discovery, Reset and Validation Requirements

In Passwordstate, through the use of PowerShell scripts, you're able to reset passwords for the following:

- Local accounts on Windows Servers/PCs
- Windows Services which are configured to use an account as its 'Log On As' identity
- Internet Information Services Application Pools which are configured to use an account as its 'Identity'
- Scheduled Tasks which are configured to run under the security context of user account
- Microsoft SQL Server accounts
- MySQL Server accounts
- Oracle account
- Linux/Unix accounts
- Cisco switch/router accounts
- You can also create your own scripts to perform any sort of processing when a Password is updated within Passwordstate

Please refer to the document 'Password Discovery Reset & Validation Requirements.pdf' for the various system requirements required to use this functionality.

#### Passwordstate Remote Session Launcher Requirements

The Passwordstate Remote Session Launcher allows you to perform RDP, SSH, Telnet or VNC remote session connections directly from the Passwordstate web site, without having to manually enter any authentication credentials.

To use this feature, please refer to the document 'Remote Session Launcher Installation Instructions.pdf' for System Requirements and installation instructions.

## 4 What Information is required for the Initial Setup

Prior to installing Passwordstate and running through the initial Setup Wizard, you will require the following information:

### Let Passwordstate Create its Own Database

- An SQL Account (not an Active Directory account) with sufficient permissions to create the database – at a minimum the 'dbcreator' and 'securityadmin' SQL Server roles are required (The 'sa' account has these privileges, although some DBA's do not like to use this account due to its elevated privileges).

During the initial setup, the following will occur:

- a. The Passwordstate database will be created and populated with some base data
- b. A SQL Account called 'passwordstate\_user' will be created, and will be given db\_owner rights to the Passwordstate database only

### Create Your Own Database, and Let Passwordstate Connect to it

- You will need to have created the empty database, and an SQL Account for Passwordstate to connect to this empty database. The SQL Account requires db\_owner rights to the Passwordstate database only

### Additional Setup Information

- Your **Registration Key** details for Passwordstate
- **Host Name** and **Port Number** of an **email server** capable of sending anonymous SMTP mail, or from an authenticated mailbox
- **SMTP Address** from which Passwordstate will send the emails from
- **Proxy Server Details** – Passwordstate can periodically check for the updates, and if your organization requires all internet access to go through a proxy server, you will need to specify the proxy host name and port number during the installation (this feature can also be disabled once you're using Passwordstate if required).

## 5 SQL Server Express, and SQL Port Number Considerations

If you intend to use SQL Server Express to host your Passwordstate database, please consider the following before installing Passwordstate:

1. If you're using SQL Server Express on a different server to where you installed Passwordstate, you may need to check if the TCP/IP Protocol is enabled (use SQL Server Configuration Manager -> SQL Server Network Configuration), and also the Windows Service 'SQL Server Browser' is set to 'Automatic' Startup Type and has been started. You will need to restart SQL Server Express after changing these settings
2. By default, SQL Server Express installs with an 'instance' name of SQLEXPRESS. When you're configuring Passwordstate for first time use, specifically the 'Database Settings' page, please ensure you have specified the name of the instance correctly i.e. fill out both the Database Server Name and Instance Name fields
3. If you intend to also install the High Availability instance of Passwordstate, SQL Server Express can only be used as the Subscriber for data replication, not the Publisher or Distribution database.

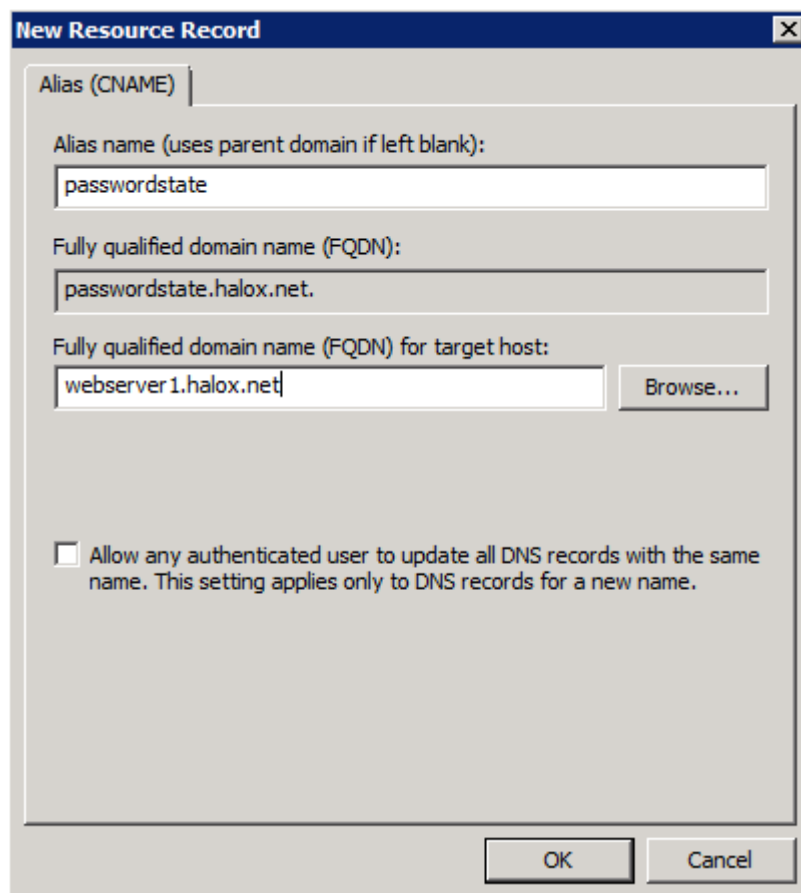
If you are running SQL Server on a non-standard port number, you will need to append the port number to the end of the Database Server Name during '9. Configuring Passwordstate for First Time Use' in the following way: ServerHostName,PortNumber i.e. sqlserver1,8484

## 6 Creating an Appropriate DNS Record

During the installation of Passwordstate, you have the option of using a URL which has the host name of the web server in it, or you can specify your own custom URL e.g. <https://passwordstate>

If you want to use your own custom URL, you will need to create a CNAME DNS entry as per the following instructions (please do not use host files for name resolution, as they do not work with Windows Authentication in IIS):

1. On your server hosting DNS, start 'DNS Manager'
2. Right click on the appropriate domain, and select 'New Alias (CNAME)'
3. As per the following screenshot, specify the name of your web server host name in the 'Fully qualified domain name (FQDN) for target host' text box, then click on the 'OK' button



**New Resource Record**

Alias (CNAME)

Alias name (uses parent domain if left blank):  
passwordstate

Fully qualified domain name (FQDN):  
passwordstate.halox.net.

Fully qualified domain name (FQDN) for target host:  
webserver1.halox.net Browse...

☐ Allow any authenticated user to update all DNS records with the same name. This setting applies only to DNS records for a new name.

OK Cancel



## 7 Installing Passwordstate

To install Passwordstate, run 'Passwordstate.exe' and follow these instructions:

1. At the 'Passwordstate Installation Wizard' screen, click on the 'Next' button

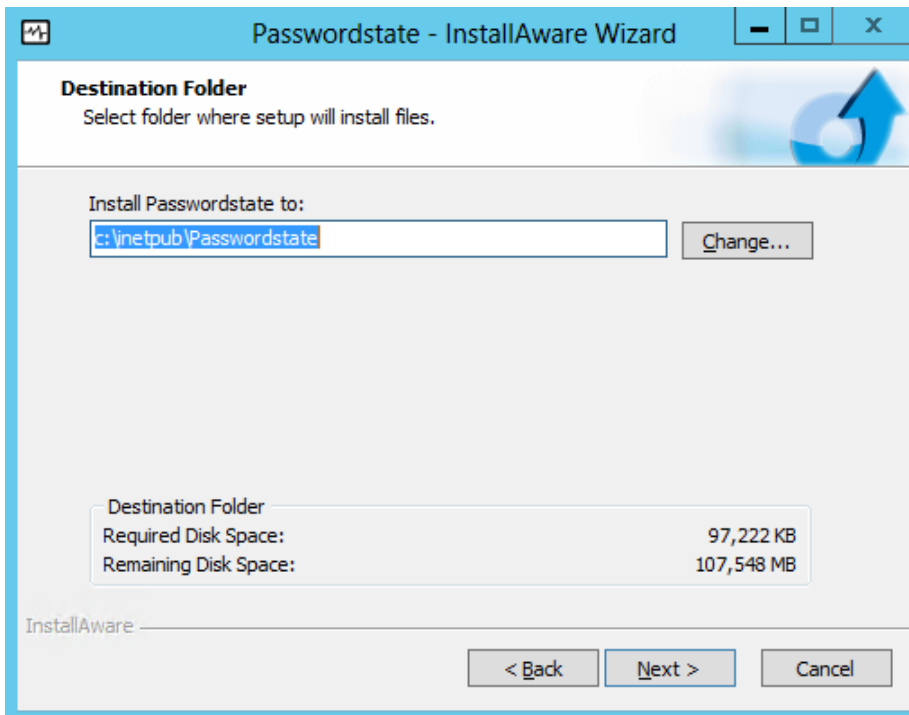


2. At the 'License Agreement' screen, tick the option 'I accept the terms in the License Agreement', then click on the 'Next' button

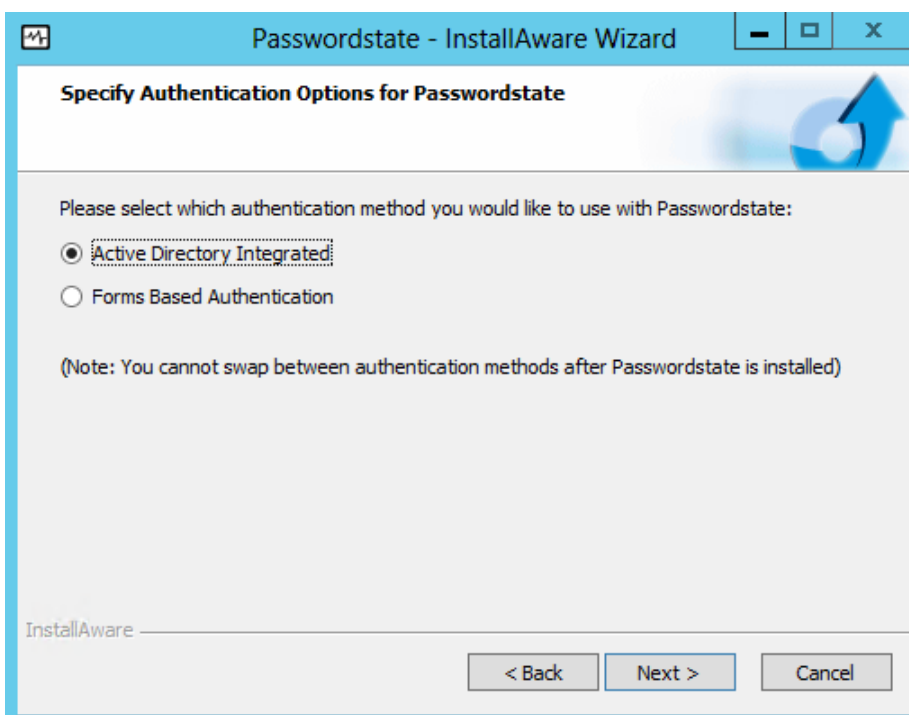


3. At the 'Destination Folder' screen, you can either accept the default path or change to a different

location, then click on the 'Next' button



- At the 'Specify Authentication Options for Passwordstate' screen, select your preferred authentication method, and then click on the 'Next' button



- At the 'Specify Web Site URL and Port Number' screen, specify the URL you would like to use, then

click on the 'Next' button



6. At the 'Completing the InstallAware Wizard for Passwordstate' screen, click on the 'Next' button



7. Once installed, click on the 'Finish' button
8. If you have a Firewall enabled on your web server, you may need to open up the port number you specified during the install (default is 9119), so that users are able to access the web site

## 8 Active Directory Integrated Authentication & Browsers

If you choose to install the 'Active Directory Integrated' version of Passwordstate, the default settings for Internet Explorer and Chrome is to pass your domain credentials from the browser to the Passwordstate web site **without prompting you for authentication details**.

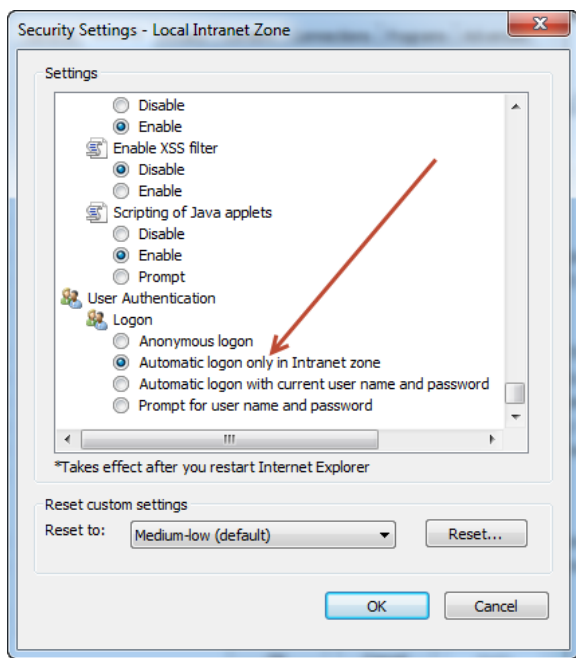
**Please Note:** It is recommended that once Passwordstate is installed, you run through the initial setup using your browser on a desktop computer or notebook, as using Internet Explorer on the server can cause prompting, regardless of the following recommendations – this is due to further restrictions Microsoft places on using browsers on server operating systems

Please use the following as a guide for troubleshooting browser prompting issues.

### Password Site being detected in Intranet Zone

The Passwordstate web site needs to be detected as being in the Local Intranet Zone, as the default settings in Internet Explorer for this zone is to 'pass through' credentials from the browser to IIS. In Internet Explorer, the option for 'User Authentication' is set to 'Automatic logon only in Intranet zone' for this zone

- Check the site is being detected in the Intranet Zone in Internet Explorer (IE9) by going to the 'File' menu and selecting 'Properties'
- Ensure 'Automatic logon only in Intranet zone' is selected for the 'Local Intranet Zone' as per the following screenshot:



**Note:** You would generally use a Group Policy setting for applying this, instead of configuring these settings per desktop computer.

### DNS Entry and IIS Site Bindings

Other issues which can cause authentication prompting relates to the DNS entry created for the site URL, in combination with the IIS site bindings. The following is a guide, and you may need to test various settings to see if you can resolve the issue this way:

- A CNAME DNS entry needs to be created, where the 'Alias' name can be anything you like - generally most customers use the Alias 'passwordstate'. The Alias needs to point to the fully

qualified domain name (FQDN) for the web server host i.e. servername.domain.com. We've seen some customers bind to the IP Address of the server, and this has caused issues

- For the IIS site 'Bindings', the hostname you specify should generally just be 'passwordstate', as per the DNS entry you created, and the IP Address you select should be 'All Unassigned'. Some customers have needed to specify the FQDN name as the Host Name i.e. passwordstate.domain.com, but generally you should not need to do this
- You should restart the web site if you make any changes with these settings

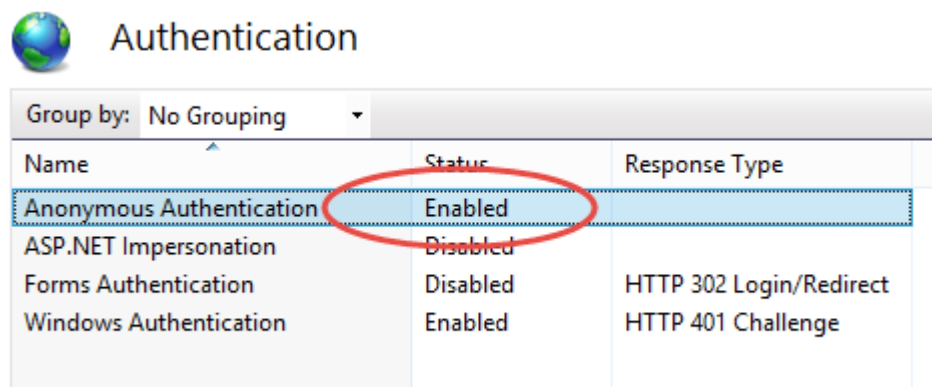
**Rebooting the Web Server**

On occasion as well, simply rebooting the web server for a few customers has resolved the browser prompting issue.

## 9 Mac and Linux Desktops, or Accessing Via the Internet

If you choose to install the 'Active Directory Integrated' version of Passwordstate, this may cause issues with Mac or Linux Desktops, or when accessing the site via the Internet. Because these desktops aren't joined to your Active Directory domain, it can cause the browser to throw an authentication prompt window, asking you to authenticate to the domain prior to being able to access Passwordstate.

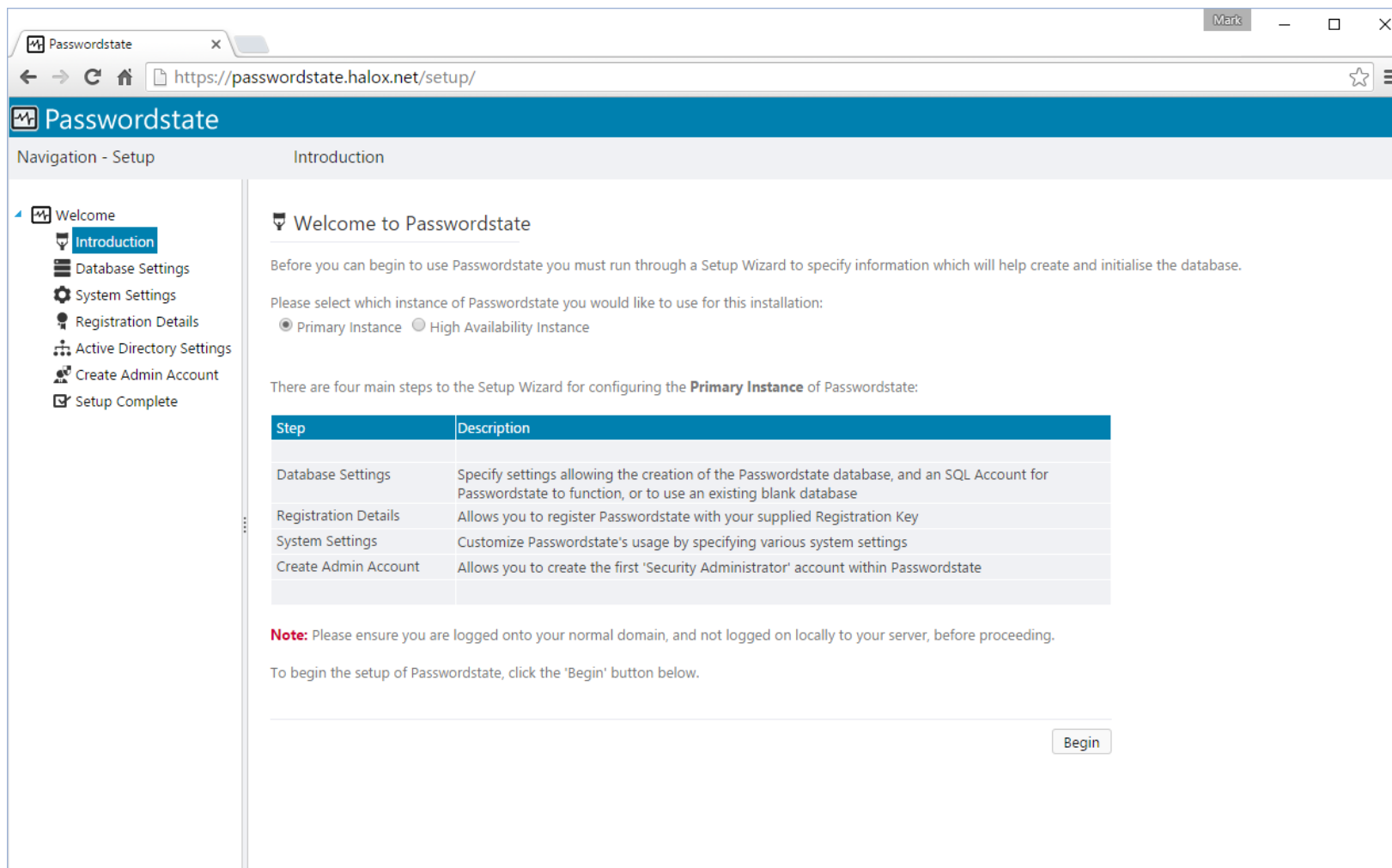
To overcome this issue, you can enable 'Anonymous Authentication' for the site in IIS, as per the screenshot below.



## 10 Configuring Passwordstate for First Time Use

**Introduction** - Now that Passwordstate is installed, you can direct your browser to the URL you specified during the initial install, and follow the initial Setup Wizard – this wizard will guide you through a series of questions for configuring Passwordstate for use.

**Please Note 1:** If using 'Active Directory Integrated' authentication, please ensure you are logged onto your domain, and not logged on locally to your server, before proceeding.



The screenshot shows a web browser window with the URL `https://passwordstate.halox.net/setup/`. The page title is "Passwordstate" and the navigation bar shows "Navigation - Setup" and "Introduction". The left sidebar contains a tree view with the following items: Welcome, Introduction (selected), Database Settings, System Settings, Registration Details, Active Directory Settings, Create Admin Account, and Setup Complete. The main content area is titled "Welcome to Passwordstate" and contains the following text:

Before you can begin to use Passwordstate you must run through a Setup Wizard to specify information which will help create and initialise the database.

Please select which instance of Passwordstate you would like to use for this installation:

☒ Primary Instance ☐ High Availability Instance

There are four main steps to the Setup Wizard for configuring the **Primary Instance** of Passwordstate:

Step	Description
Database Settings	Specify settings allowing the creation of the Passwordstate database, and an SQL Account for Passwordstate to function, or to use an existing blank database
Registration Details	Allows you to register Passwordstate with your supplied Registration Key
System Settings	Customize Passwordstate's usage by specifying various system settings
Create Admin Account	Allows you to create the first 'Security Administrator' account within Passwordstate

**Note:** Please ensure you are logged onto your normal domain, and not logged on locally to your server, before proceeding.

To begin the setup of Passwordstate, click the 'Begin' button below.

[Begin](#)

**Database Settings – Create New Database** - On this screen you will need to specify database settings for creating the Passwordstate database. Please use the onscreen instructions if you have any issues connecting to the database.

**Please Note:** Creating the database, and populating the tables with data, could take up to a minute to complete.

Passwordstate

https://passwordstate.halox.net/setup/

Navigation - Setup

Database Settings

Welcome

- Introduction
- Database Settings**
- System Settings
- Registration Details
- Active Directory Settings
- Create Admin Account
- Setup Complete

**Database Settings**

In order to create the Passwordstate database, the following conditions must be met:

**Condition 1:** Your SQL Server must be configured for **mixed-mode authentication**

**Condition 2:** You must supply an SQL Account (below) with sufficient privileges to create the Passwordstate database - at a minimum the 'dbcreator' and 'securityadmin' SQL Server roles

If you are having problems connecting to the database, click here for help - [Possible Connection Failure Reasons.](#)

**Please Note:** Creating the database, and populating the tables with data, can take up to a minute to complete.

**create new database** | **connect to blank database** | **database creation log**

To create a new database, please specify details below as appropriate.

Database Server Name \*

SQL Server Instance Name

SQL Login Name \*

sa

Specify an SQL Account login here - not a Windows Domain account.  
Note: This account will no longer be used after the initial setup is complete.

Password \*

☐ I have clicked on the 'Test Connection' link

Status: Not tested

[Test Connection](#) [Next](#)



**Database Settings – Connect to Blank Database** – If you prefer to create the blank Passwordstate database yourself prior to tables being created and populated with data, you can do so by clicking on the ‘Connect to Blank Database’ tab first.

**Please Note:** You must first create a blank database to connect to, and an appropriate SQL Account which has db\_owner rights to this database. If connecting to a Microsoft Azure or Amazon AWS database, please refer to their documentation for how to create the database and SQL Account.

The screenshot shows the Passwordstate setup interface in a web browser. The browser address bar shows <https://passwordstate.halox.net/setup/>. The page has a blue header with the Passwordstate logo. A left sidebar contains a navigation menu with the following items: Welcome, Introduction, Database Settings (highlighted), System Settings, Registration Details, Active Directory Settings, Create Admin Account, and Setup Complete. The main content area is titled 'Database Settings' and contains the following text: 'In order to create the Passwordstate database, the following conditions must be met: Condition 1: Your SQL Server must be configured for mixed-mode authentication Condition 2: You must supply an SQL Account (below) with sufficient privileges to create the Passwordstate database - at a minimum the 'dbcreator' and 'securityadmin' SQL Server roles'. Below this is a link: 'If you are having problems connecting to the database, click here for help - Possible Connection Failure Reasons.' A 'Please Note' section states: 'Creating the database, and populating the tables with data, can take up to a minute to complete.' There are three tabs: 'create new database', 'connect to blank database' (selected), and 'database creation log'. The 'connect to blank database' tab contains the following text: 'To connect to a blank database you have manually created yourself, please specify details below as appropriate.' A red flag icon and note state: 'Note: You must have also created the SQL Login Name below yourself, and this account requires db\_owner rights to the Passwordstate database only.' The form fields are: 'Database Location \*' with radio buttons for 'Internal' (selected), 'Microsoft Azure', and 'Amazon RDS'; 'Database Server Name \*' with a text input field; 'SQL Server Instance Name' with a text input field; 'Database Name \*' with a text input field containing 'passwordstate'; 'SQL Login Name \*' with a text input field containing 'passwordstate\_user'; and 'Password \*' with a text input field. Below the password field is a checkbox labeled 'I have clicked on the 'Test Connection' link'. At the bottom, the status is 'Status: Not tested' and there are 'Test Connection' and 'Next' buttons.

**System Settings** – On this screen you specify various system wide settings for Passwordstate usage. Explanation for each of these settings is detailed after this screenshot.

The screenshot shows the Passwordstate installation interface in a web browser. The browser's address bar displays `https://passwordstate.halox.net/setup/`. The page has a blue header with the Passwordstate logo and a navigation bar with the following items: Welcome, Introduction, Database Settings, System Settings (highlighted), Registration Details, Active Directory Settings, Create Admin Account, and Setup Complete. The main content area is titled "System Settings" and includes a sub-header "system settings". Below this, there are three main sections: "Email Settings", "Emergency Access Account", and "FIPS Support". The "Email Settings" section contains fields for Email Server Host Name, Email Server Port Number (set to 25), Send From Email Address, Use Mailbox to Send (radio buttons for Yes/No), Send Mail via TLS (radio buttons for Yes/No), User Name, Password, and Domain Name. The "Emergency Access Account" section contains fields for Password and Confirm Password. The "FIPS Support" section contains a note about FIPS compliance and radio buttons for Yes/No. At the bottom right, there is a "Next" button.

Navigation - Setup

System Settings

system settings

**Email Settings**  
Please specify the appropriate email details so Passwordstate can send emails - leave blank if you want no emails to be sent.

Email Server Host Name :

Email Server Port Number :

Send From Email Address :

Use Mailbox to Send : ☒ Yes ☐ No

Send Mail via TLS : ☐ Yes ☒ No

User Name :

Password :

Domain Name :

**Emergency Access Account**  
Please specify a Password for the Emergency Access account, and the URL for this login is 'https://passwordstate.halox.net/emergency'

Password: \*

Confirm Password: \*

**FIPS Support**  
If your environment needs to support FIPS compliance (Federal Information Processing Standards), please click the 'Yes' option below.

**Note:** FIPS support is generally not required, unless mandated by the US government for your organization. Once the FIPS supported encryption method is being used, it cannot be turned off.

☐ Yes ☒ No

**Proxy Server Settings**  
If required, specify proxy settings for checking for new builds:

Proxy Server :   
Format is "ServerName:PortNumber"

User Name :

Password :

Next

**System Settings Detail**

Action	Description
<b>Email Settings</b>	
<i>Email Server Host Name</i>	The host name of an email server which is able to send either anonymous SMTP email, or authenticated email from a specific mailbox
<i>Email Server Port Number</i>	The port number in which your email server is configured to send mail (port 25 is generally the default port)
<i>SMTP Address</i>	The SMTP address you would like emails to be sent from when generated from within Passwordstate
<i>Use Mailbox to Send</i>	If you would like to send all email in Passwordstate from an authenticated mailbox, then select this option. If unselected, email will be sent via anonymous SMTP
<i>User Name &amp; Password</i>	Domain user name and Password for the authenticated mailbox
<i>Domain Name</i>	NetBIOS name for the domain the mailbox belongs to
<b>Emergency Access Account</b>	The Emergency Access Account is only used if you're unable to authenticate with any other accounts
<b>Miscellaneous Settings</b>	
<i>FIPS Support</i>	If you're organization requires compliance for the FIPS standard, select this encryption option
<i>Proxy Server</i>	Passwordstate can check if new versions are available. If you require to specify some proxy server details to access the Internet, you can do so here (checks for updates can also be disabled once you've started Passwordstate)

**Registration Details** – On this screen you need to specify your Registration details for Passwordstate. If you have not received your registration details, please visit [www.clickstudios.com.au](http://www.clickstudios.com.au).

The screenshot shows a web browser window with the URL <https://passwordstate.halox.net/setup/>. The page title is "Passwordstate" and the navigation bar shows "Navigation - Setup" and "Registration Details". The left sidebar contains a list of setup steps: Welcome, Introduction, Database Settings, System Settings, Registration Details (highlighted), Active Directory Settings, Create Admin Account, and Setup Complete. The main content area is titled "Registration Details" and contains the following text: "Please specify your registration information for Passwordstate below, then click on the 'Next' button." Below this is a note: "Note: During the first 30 days of using Passwordstate, you will be evaluating the Enterprise License (Unlimited Users). Once the 30 days has expired, it will revert back to the Free 5 User version - unless you purchase some licenses." The form fields are: "License Type" (set to "Client Access Licenses"), "Registration Name \*" (text input), "License Count \*" (text input), and "Registration Key \*" (text area). A "Next" button is located at the bottom right of the form.

Mark

Navigation - Setup

Registration Details

Welcome

Introduction

Database Settings

System Settings

Registration Details

Active Directory Settings

Create Admin Account

Setup Complete

Registration Details

Please specify your registration information for Passwordstate below, then click on the 'Next' button.

**Note:** During the first 30 days of using Passwordstate, you will be evaluating the Enterprise License (Unlimited Users). Once the 30 days has expired, it will revert back to the Free 5 User version - unless you purchase some licenses.

License Type

Client Access Licenses

Registration Name \*

License Count \*

Registration Key \*

Next

## Active Directory Settings

If you have installed the Active Directory integrated version of Passwordstate, there are certain AD settings you must also supply. For the Privileged Account Credentials, you must at supply an account which has 'Read' access to AD, so Security Groups can be queried, and user account enabled/disabled status can be determined.

The screenshot shows a web browser window with the URL <https://passwordstate.halox.net/setup/>. The page title is "Passwordstate" and the navigation bar shows "Navigation - Setup" and "Active Directory Settings". The left sidebar contains a menu with the following items: Welcome, Introduction, Database Settings, System Settings, Registration Details, Active Directory Settings (highlighted), Create Admin Account, and Setup Complete. The main content area is titled "Active Directory Settings" and includes the following text: "Please confirm the Active Directory Settings below, and also specify Privileged Account Credentials to read AD Security Groups and Accounts." Below this text is a form with two sections. The first section is "Active Directory Domain" and contains the following fields: "AD Domain NetBIOS Name \*" with the value "halox" and a hint "e.g. clickstudios", and "AD Domain LDAP Query String \*" with the value "DC=halox,DC=net" and a hint "e.g. dc=clickstudios,dc=com,dc=au". The second section is "'Read' Privileged Account Credentials" and contains the following fields: "UserName : \*" with a text input field and a hint "Domain\UserID", and "Password : \*" with a password input field and a "Show/Hide" icon. A "Next" button is located at the bottom right of the form.

active directory settings

**Active Directory Domain**  
Please confirm the Active Directory settings are correct for your domain.

AD Domain NetBIOS Name \* :   
e.g. clickstudios

AD Domain LDAP Query String \* :   
e.g. dc=clickstudios,dc=com,dc=au

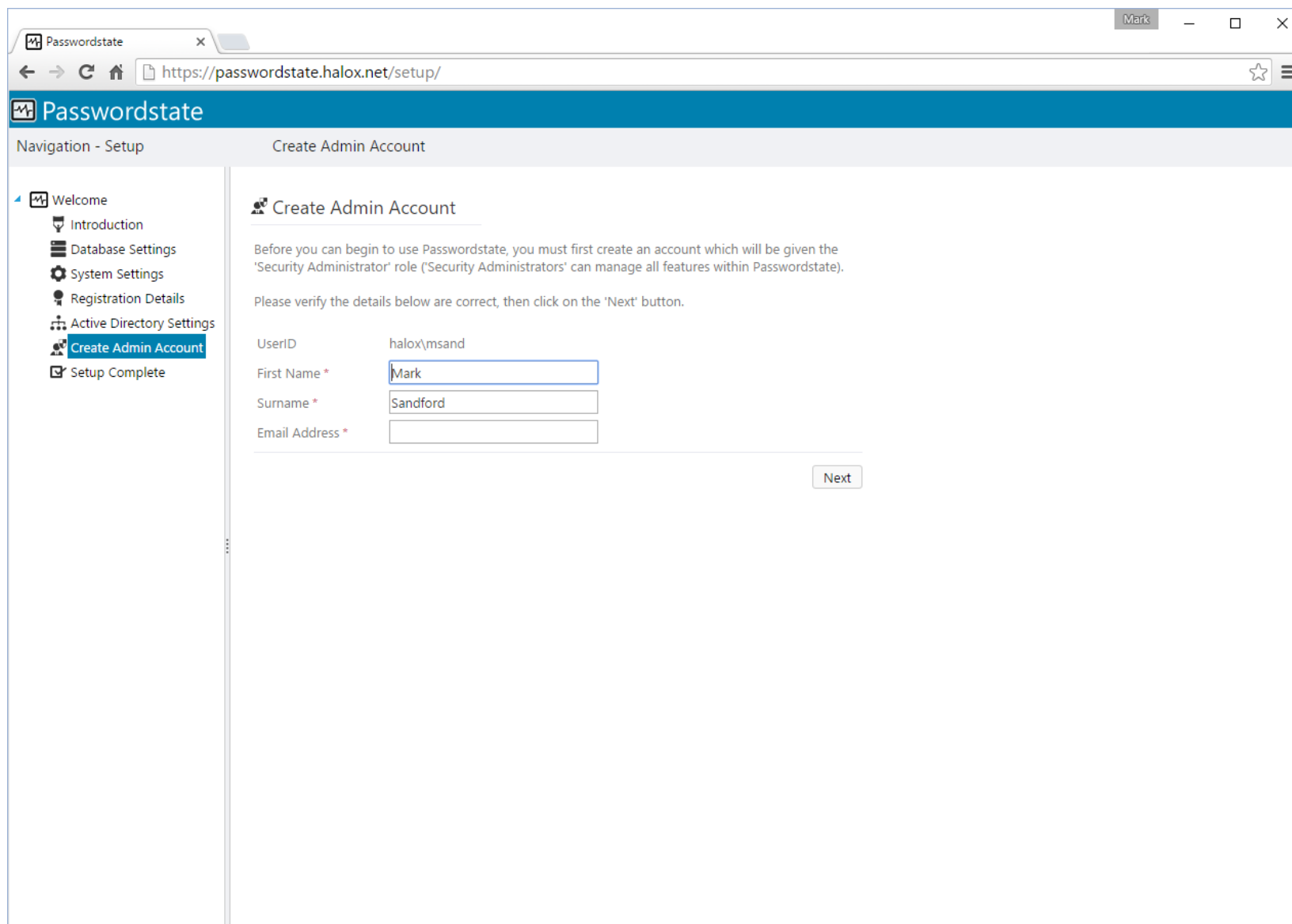
**"Read" Privileged Account Credentials**  
Specify account with Read access to query Active Directory Users and Security Groups:

UserName : \*   
Domain\UserID

Password : \*

Next

**Create Admin Account** – On this screen you specify details for the first user account to be created in Passwordstate. This account will be granted Security Administrator privileges, and assign all Security Administrator roles.



The screenshot shows a web browser window with the URL `https://passwordstate.halox.net/setup/`. The page title is "Passwordstate" and the navigation bar indicates "Navigation - Setup" and "Create Admin Account".

**Left Navigation Panel:**

- Welcome
  - Introduction
  - Database Settings
  - System Settings
  - Registration Details
  - Active Directory Settings
  - Create Admin Account**
  - Setup Complete

**Main Content Area:**

### Create Admin Account

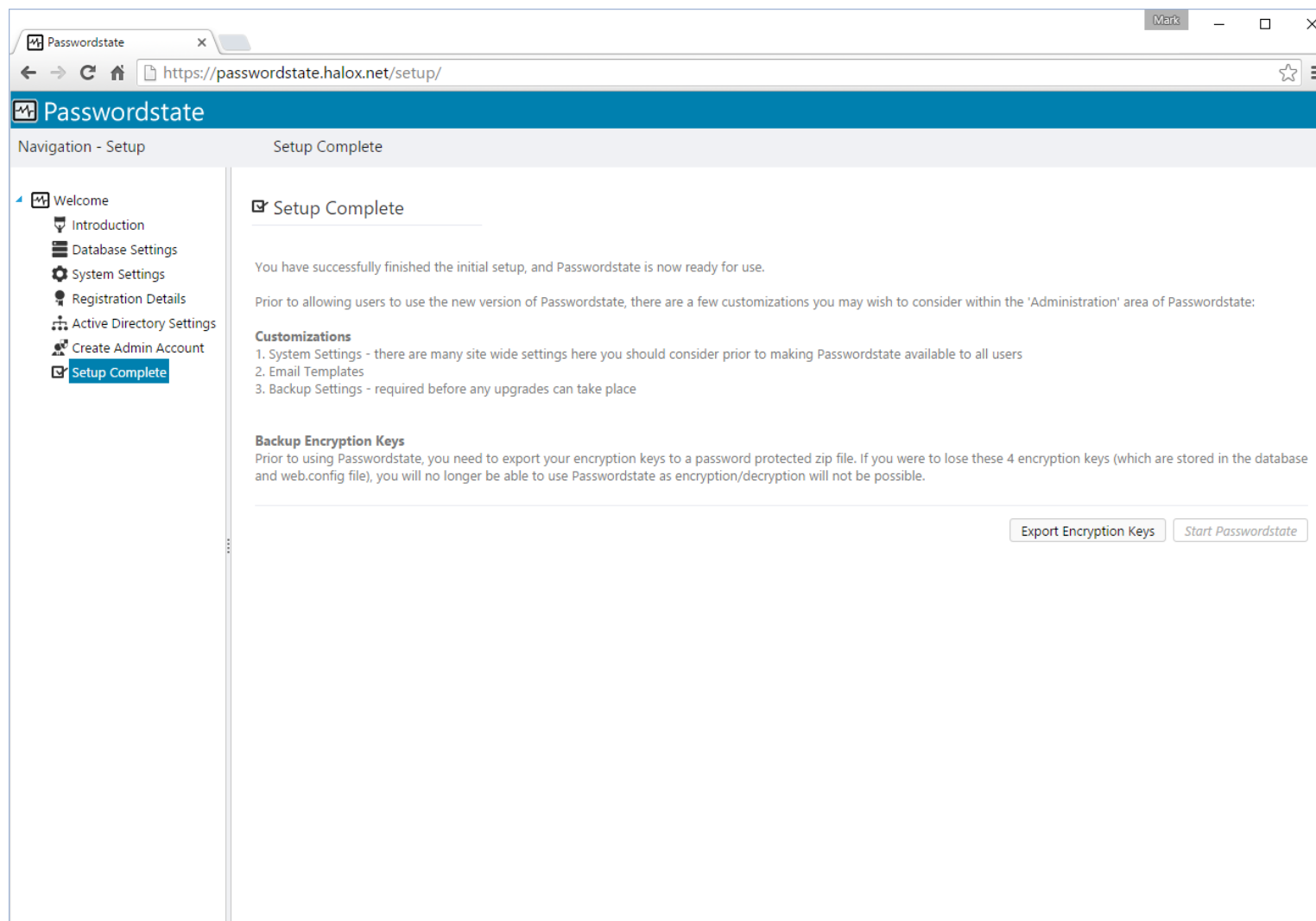
Before you can begin to use Passwordstate, you must first create an account which will be given the 'Security Administrator' role ('Security Administrators' can manage all features within Passwordstate).

Please verify the details below are correct, then click on the 'Next' button.

UserID	halox\msand
First Name *	<input type="text" value="Mark"/>
Surname *	<input type="text" value="Sandford"/>
Email Address *	<input type="text"/>

**Setup Complete** – The installation is now complete and you can begin using Passwordstate. Prior to granting access, or informing users of the new version, you may wish to review some of the system wide settings found under the 'Administration' area of Passwordstate.

**Export Encryption Keys** – It is very important you export your encryption keys for safe storage outside of Passwordstate. If you were to lose your web.config file in a disaster, Click Studios would not be able to help you rebuild your Passwordstate environment. The split encryptions keys are stored in the web.config file, and within the database.

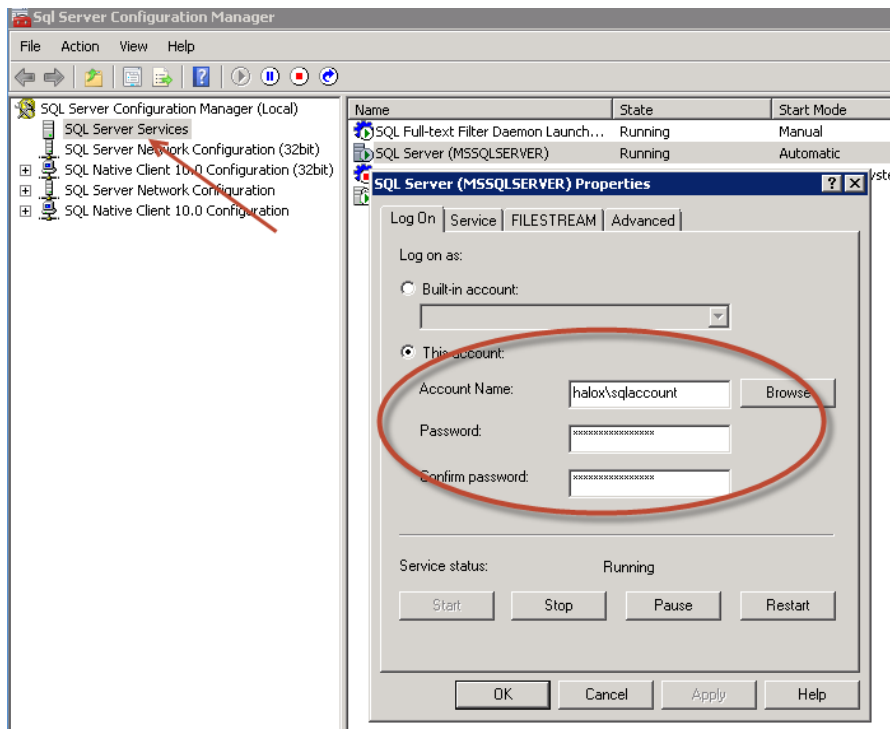


## 11 Passwordstate Backups

To allow backups to work through the Passwordstate web interface, you will need to specify an account (domain or Windows account), which has the following permissions:

- Permissions to write to the Backup path you've specified
- Permissions to stop and start the Passwordstate Windows Service on the web server
- Permissions to write to the Passwordstate folder.

In addition to this, you must configure the SQL Server service to use a domain or Windows account which has permissions to also write to the Backup Path. To do this, you need to open the 'SQL Server Configuration Manager' utility on your database server, click on 'SQL Server Services', and then specify and account as per the next screenshot:



1. Now you can navigate to the page Administration -> Backups & Upgrades
2. Click on the 'Backup & Upgrade Settings' button
3. Using the Windows/Domain account mentioned above, configure the options on the screen and click on the 'Test Permissions' button. If the Test Permissions is successful, you can return to the previous screen and run a manual backup by clicking on the 'Backup Now' button.



## 12 Encrypting the Database Connection String in the Web.config file

Whilst it's not entirely necessary to encrypt the database connection strings within the web.config file, it is recommended so the SQL Account credentials used to access the Passwordstate database is encrypted and unreadable from anyone who can read the file system on your web server.

To encrypt the database connections string, please follow these instructions:

### Encrypt Connection String

- Open a command prompt and type `CD C:\Windows\Microsoft.NET\Framework64\v4.0.30319`
- Type the following:
  - `aspnet_regiis.exe -pef "connectionStrings" "c:\inetpub\passwordstate"` (change the path if you've installed Passwordstate to a different location)

### Decrypt Connection String

- Open a command prompt and type `CD C:\Windows\Microsoft.NET\Framework64\v4.0.30319`
- Type the following:
  - `aspnet_regiis.exe -pdf "connectionStrings" "c:\inetpub\passwordstate"` (change the path if you've installed Passwordstate to a different location)

**Note 1:** If you intend to rename your server host name, or move your Passwordstate install to a different server, you should decrypt these settings first.

**Note 2:** If you do not wish to use an SQL Account to connect to your database server, please refer to the section below in this document titled 'Configure Passwordstate to use a Managed Service Account (MSA) to connect to the database'.

## 13 Encrypting the appSettings Section within the Web.config file

It is also not entirely necessary to encrypt the appSettings section within the web.config file, but as this section of the file stores half of your split encryption keys, it is recommended for added security.

To encrypt the appSettings section, please follow these instructions:

### Encrypt appSettings Section

- Open a command prompt and type `CD C:\Windows\Microsoft.NET\Framework64\v4.0.30319`
- Type the following:
  - `aspnet_regiis.exe -pef "appSettings" "c:\inetpub\passwordstate"` (change the path if you've installed Passwordstate to a different location)

### Decrypt appSettings Section

- Open a command prompt and type `CD C:\Windows\Microsoft.NET\Framework64\v4.0.30319`
- Type the following:
  - `aspnet_regiis.exe -pdf "appSettings" "c:\inetpub\passwordstate"` (change the path if you've installed Passwordstate to a different location)

**Note:** If you intend to rename your server host name, or move your Passwordstate install to a different server, you should decrypt these settings first.

## 14 SSL Certificate Considerations

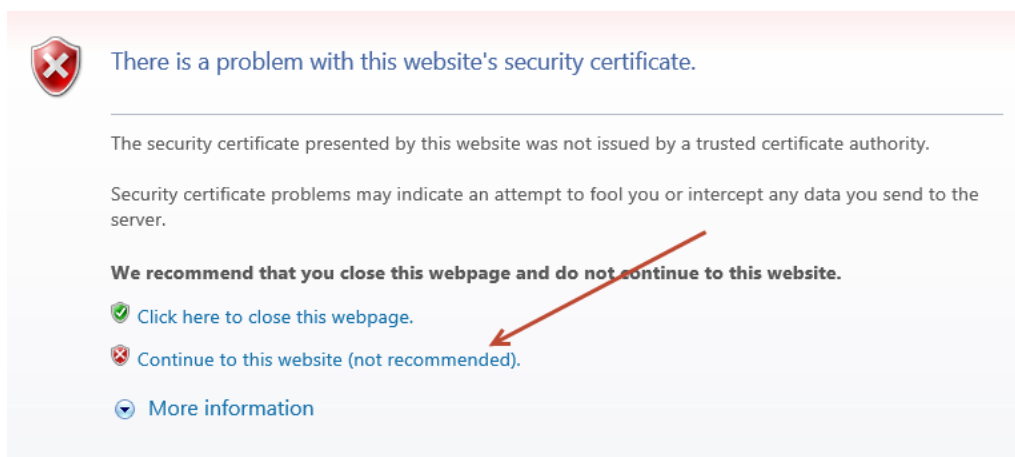
The installer for Passwordstate installs a self-signed SSL certificate on your web server, and binds it to the Passwordstate web site.

If you have your own SSL certificate installed on the web server you'd prefer to use, you can modify the bindings for the site in IIS, and select the appropriate certificate.

If you wish to continue using the self-signed SSL certificate, then you may want to instruct your users to "Install" the certificate on their computer, so the various Internet browsers don't complain about the certificate not being issued by a trusted authority.

To install the certificate, you can follow these steps:

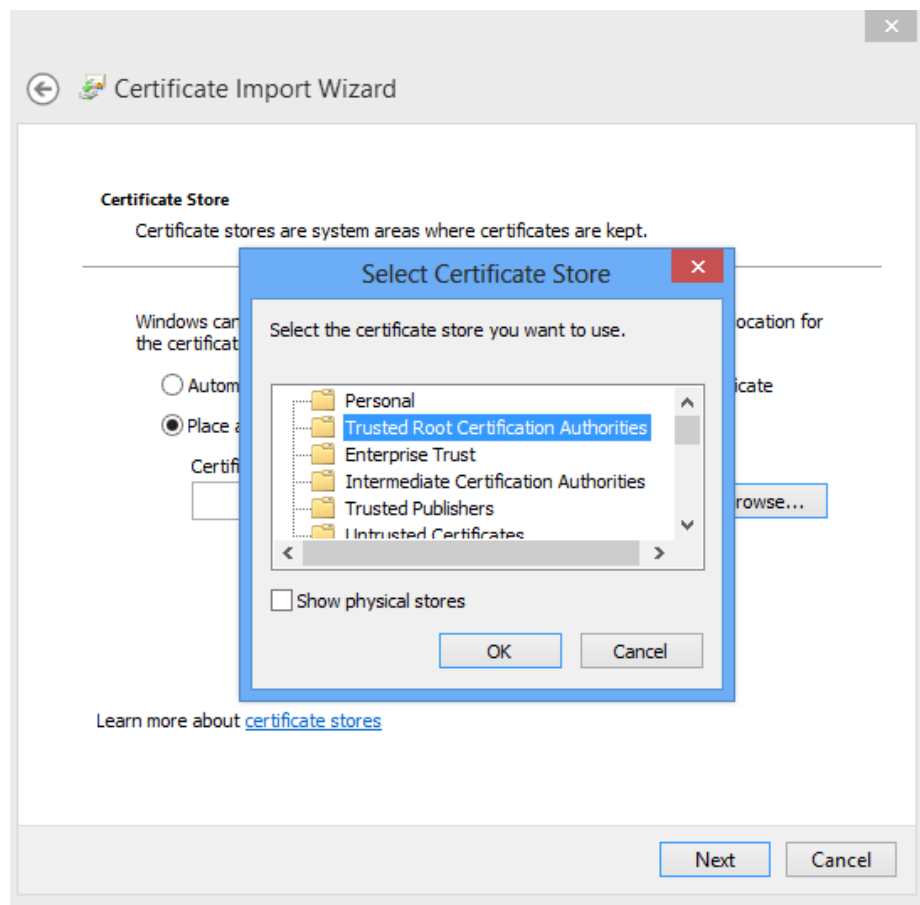
1. Using Internet Explorer, browser to the Passwordstate web site
2. When you see the following screen, click on the 'Continue to this website' link



3. Now click on the 'Certificate error' link at the top of your screen



4. The click on 'View Certificates', then on the 'Install Certificate...' button
5. Select the 'Local Machine' Store Location, then click on the 'Next' button
6. Select 'Place all certificates in the following store' option, click on the 'Browse' button, and select 'Trusted Root Certification Authorities' as per the next screenshot



7. Now click on the 'OK' button, then the 'Next' and 'Finish' buttons
8. After the certificate is installed, you can close and re-open your browser to the Passwordstate web site, and it should no longer complain about an untrusted certificate

## 15 Configure Passwordstate to use a Managed Service Account (MSA) to connect to the database

As of Build 7301, it is possible to configure Passwordstate to use a Managed Service Account to communicate with the database server, instead of a SQL Login Account. Below are the following steps required in order to configure support for this.

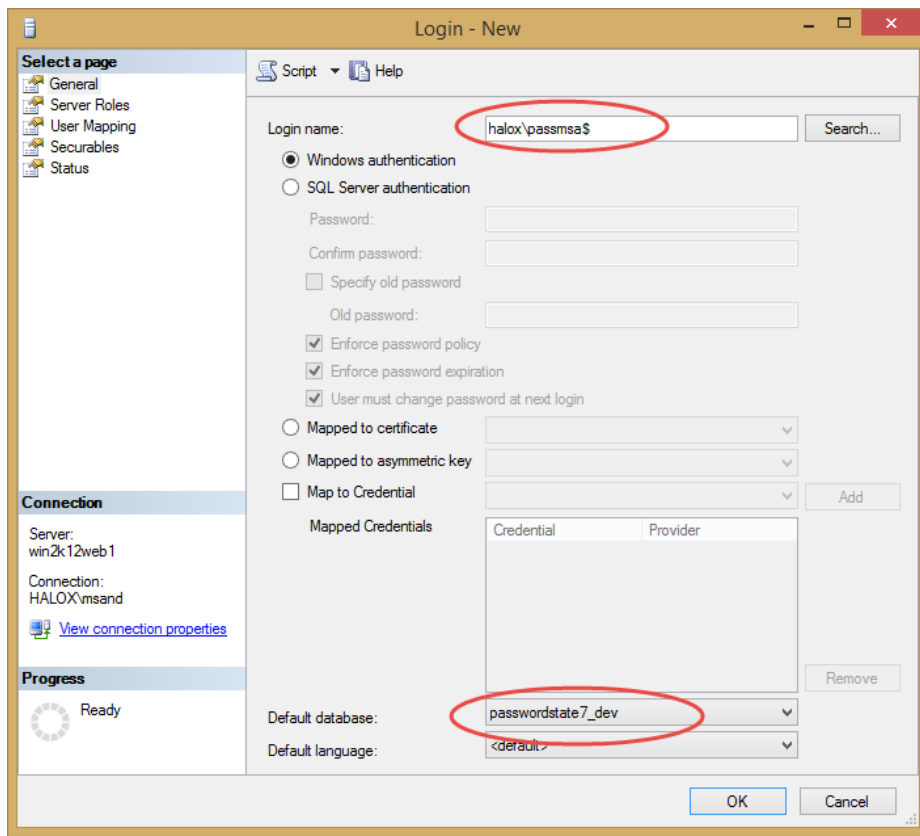
### Create a Managed Service Account (MSA)

- On your domain controller, open PowerShell console as an Admin, and execute the following commands
  - `New-ADServiceAccount -Name <MSAAccountName> -RestrictToSingleComputer -AccountPassword (ConvertTo-SecureString -AsPlainText "<password>" -Force) -Path "cn=<MyCN>,dc=<MyDC>,dc=<MyDC>"` (replace the variables in <> as appropriate)
  - `Add-ADComputerServiceAccount -Identity "<MyWebServerName>" -ServiceAccount "<MSAAccountName>"` (The Web Server Name is where the MSA Account will be used)
- On your Passwordstate Web Server, open PowerShell console as Admin, and execute the following commands:
  - `Add-WindowsFeature RSAT-AD-PowerShell` (this role may already be installed)
  - `Import-Module ActiveDirectory`
  - `Install-ADServiceAccount -Identity <MSAAccountName>`

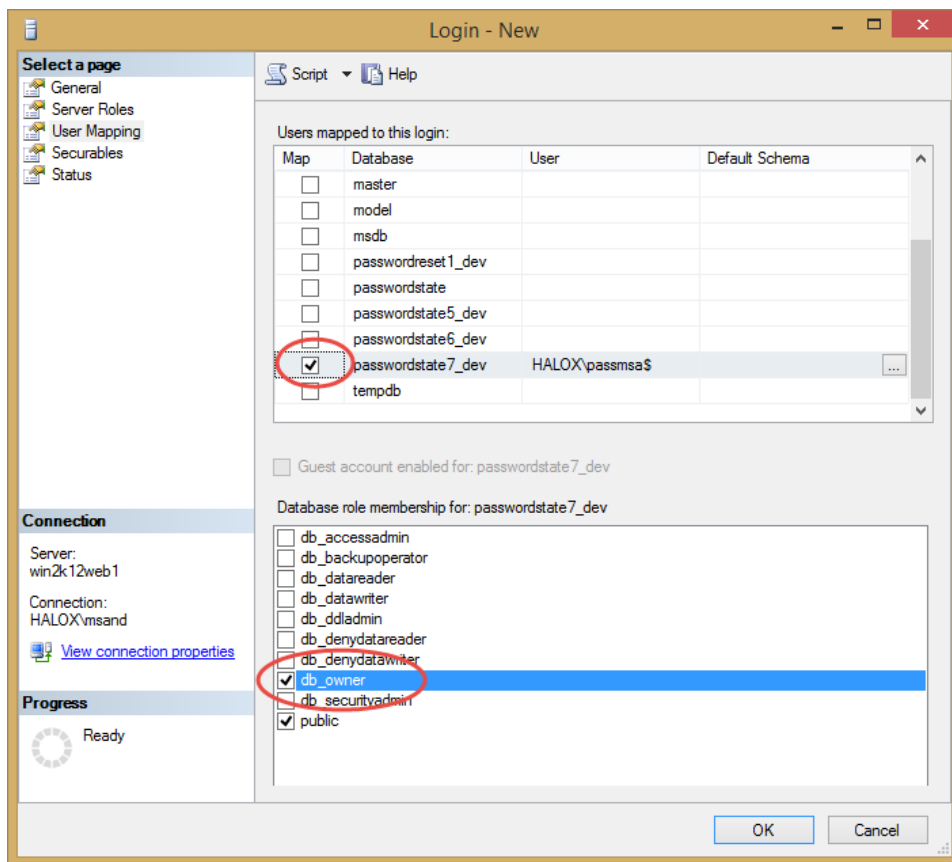
### MSA Account and SQL Server

You now need to add a new Windows login within your SQL Server, and you can use the screenshots below as a guide – in our example, the MSA account is called passmsa, and whenever referencing an MSA account you must append the \$ symbol to the end.

1. Create the MSA Login Account

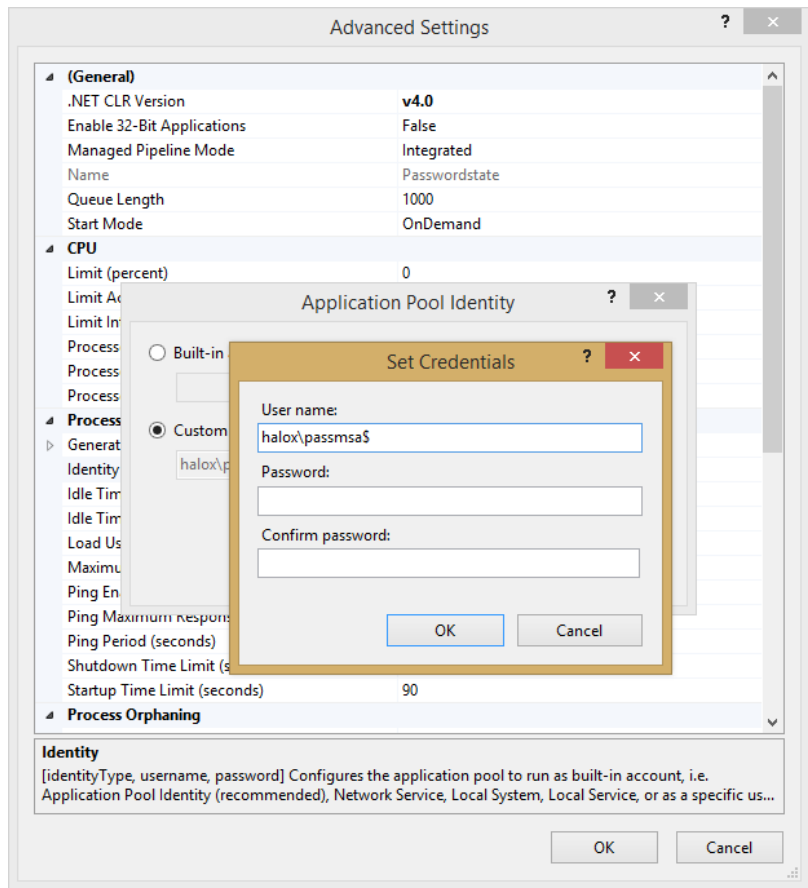


2. Grant the MSA Account db\_owner rights to the Passwordstate database



## Configure Passwordstate IIS Application Pools

You need to open Internet Information Services Manager, and modify the "Identity" for both the Passwordstate and PasswordstateApps Application Pools so it uses the MSA Account. When specifying the MSA Account to use, you leave the password fields blank, as per the screenshot below.



## Modify the Passwordstate web.config file

- Open the web.config file in the root of the Passwordstate folder (open as Admin with notepad or equivalent)
- Change the line:

```
<add name="PasswordstateConnectionString" connectionString="Data Source=<ServerName>;Initial
Catalog=passwordstate;User ID=passwordstate_user;Password=<MyPassword>"
providerName="System.Data.SqlClient" />
```

to read like:

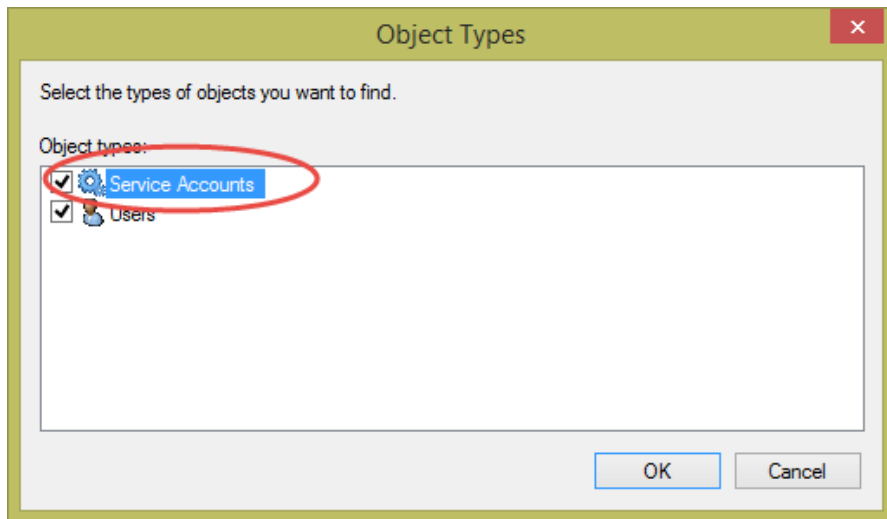
```
<add name="PasswordstateConnectionString" connectionString="Data Source=<ServerName>;Initial
Catalog=passwordstate;Integrated Security=SSPI;" providerName="System.Data.SqlClient" />
```

- Save the file and exit notepad

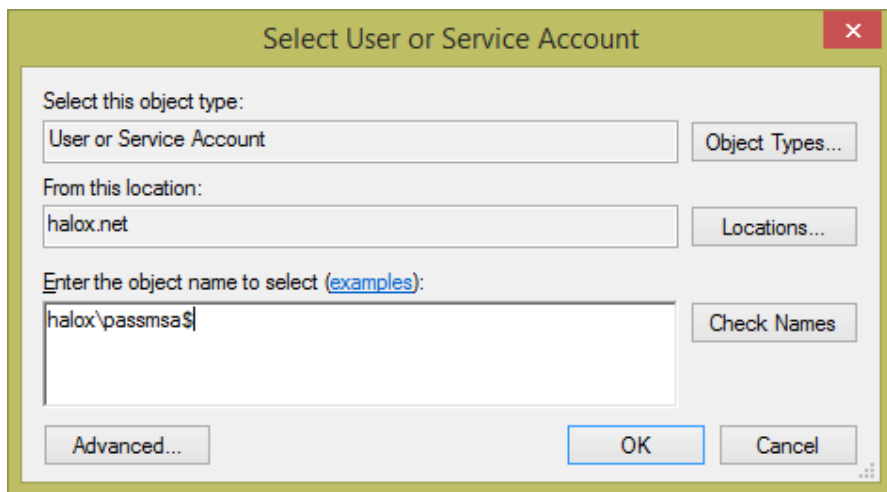
## Configure Passwordstate Windows Service

We now need to change the 'Log On As' property for the Passwordstate Windows Service to use the MSA Account.

When doing so, you may need to select the 'Service Accounts' Object Type in order to find the account in Active Directory, as per the screenshot below:



And also leave the password for the account blank, just like the Application Pools.



Now restart the Passwordstate Windows Service.

### File System NTFS Permissions Considerations

The Passwordstate Windows Service can write to disk any new Custom Images or Logos that you may have uploaded into Passwordstate. It is possible that the MSA Account you're using does not have modify rights to the Passwordstate folder, in which case we can do one of two things:

1. If you have configured the Backup and In-Place Upgrade account in Passwordstate on the screen Administration -> Backups and Upgrades, then this account will be used for writing images to disk, and you do not need to do anything further
2. If you are not using the Backup and In-Place Upgrade feature, you will need to manually add Modify NTFS permissions to the Passwordstate folder and all nested files/folders for the MSA Account.

If neither of the two options above is possible, images cannot be written to the disk, and appropriate event log entries on your web server will be added to reflect this.



## 16 X-Forwarded-For Support

When Passwordstate adds auditing data to the database, it records the IP Address of the client who initiated an action which triggered the audit event.

As Passwordstate supports the “X-Forwarded-For (XFF) HTTP header field” for identifying the originating IP address of a client, and if you use any form of Load Balancing or Proxy Server caching, you may need to make configuration changes to your device/appliance. This will ensure the correct IP Address of the client is reported, instead of the load balancer or proxy server.

## 17 Troubleshooting Connectivity Issues

If when you first try and browse to the Passwordstate web site you get a blank page, or an error saying '**The page cannot be displayed because an internal server error has occurred.**', this may be caused by the order in which you installed Internet Information Services and the .Net Framework 4.5 – if you install the .NET Framework first, this error will occur.

Note: These instructions only apply to Microsoft Windows Server 2008, Server 2008 R2 and Windows 7

To resolve this, follow these instructions:

- Open an Command Prompt as an Administrator
- Type **CD C:\Windows\Microsoft.NET\Framework\v4.0.30319** or **C:\Windows\Microsoft.NET\Framework64\v4.0.30319** depending on our operating system version
- Now type **aspnet\_regiis -i**
- After ASP.NET has been re-registered, ensure the Passwordstate Application Pool in IIS is set to 'Integrated Managed Pipeline Mode', and then restart IIS (you need to open the Internet Information Services (IIS) Manager tool to do this)
- Now open your browser and point it back to the Passwordstate web site

You may need to do this for both the 32bit and 64bit versions on the Framework directories above if you still experience issues.

## 18 McAfee and Constant Logout Issues

McAfee's Anti-Virus On-Demand scan can cause issues with logging users out of Passwordstate prematurely, before the default IIS session time of 10 minutes.

The On-Demand scan process isn't blocking the accessing of any files, but when it scans either the web.config file, or any files in the /bin folder, it can cause sessions in IIS to end.

We recommend excluding the Passwordstate folder from On-Demand scanning, as this has helped a lot of customers.

If you are seeing the same symptoms, but are using a different Anti-Virus suite, please also exclude the Passwordstate folder from real-time scanning to see if this helps.