



Click Studios

Passwordstate

High Availability Installation Instructions

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1 Overview

The purpose of the High Availability module is to allow you to have a second install of Passwordstate for Disaster Recovery purposes – without purchasing this license, the End User License Agreement (EULA) only allows you to have one production install.

There are two architectural designs to consider in the section 'Architectural Overview', and there are multiple methods which can be used to move data between database servers i.e. Log Shipping, Transactional Replication, SQL High Availability Groups or scheduled backup/restores.

In the event your primary Passwordstate web server or database server were unavailable, you can still access your passwords via the High Availability instance.

2 Prerequisites

The High Availability module of Passwordstate has the following prerequisites:

Web Server Prerequisites

- The HA Web server has the same web server system requirements as the primary install. Please refer to the document 'Installation_Instructions.pdf' for details
- Prior to establishing SQL Server data replication, there are two things which need to be done:
 - On your Primary Instance of Passwordstate, go to the screen Administration -> License Information, and add your High Availability License key here
 - On your Primary Instance of Passwordstate, go to the screen Administration -> Authorized Web Servers, and also register the host name of your High Availability web server – this is the NetBIOS name of your web server

Database Server Prerequisites

Below is some information regarding the various replication and SQL Server versions:

- Always On Availability Groups requires both servers to be SQL Server Enterprise
- Basic Availability Groups requires both servers to be SQL Server Standard or above
- Transactional replication requires the primary server (Publisher) to be at least SQL Server Standard, and the subscribing server can be SQL Server Express

Note 1: You must be using the same versions of SQL Server i.e. both must be Server 2014, or 2016, etc. And generally, the same Service Pack level is required.

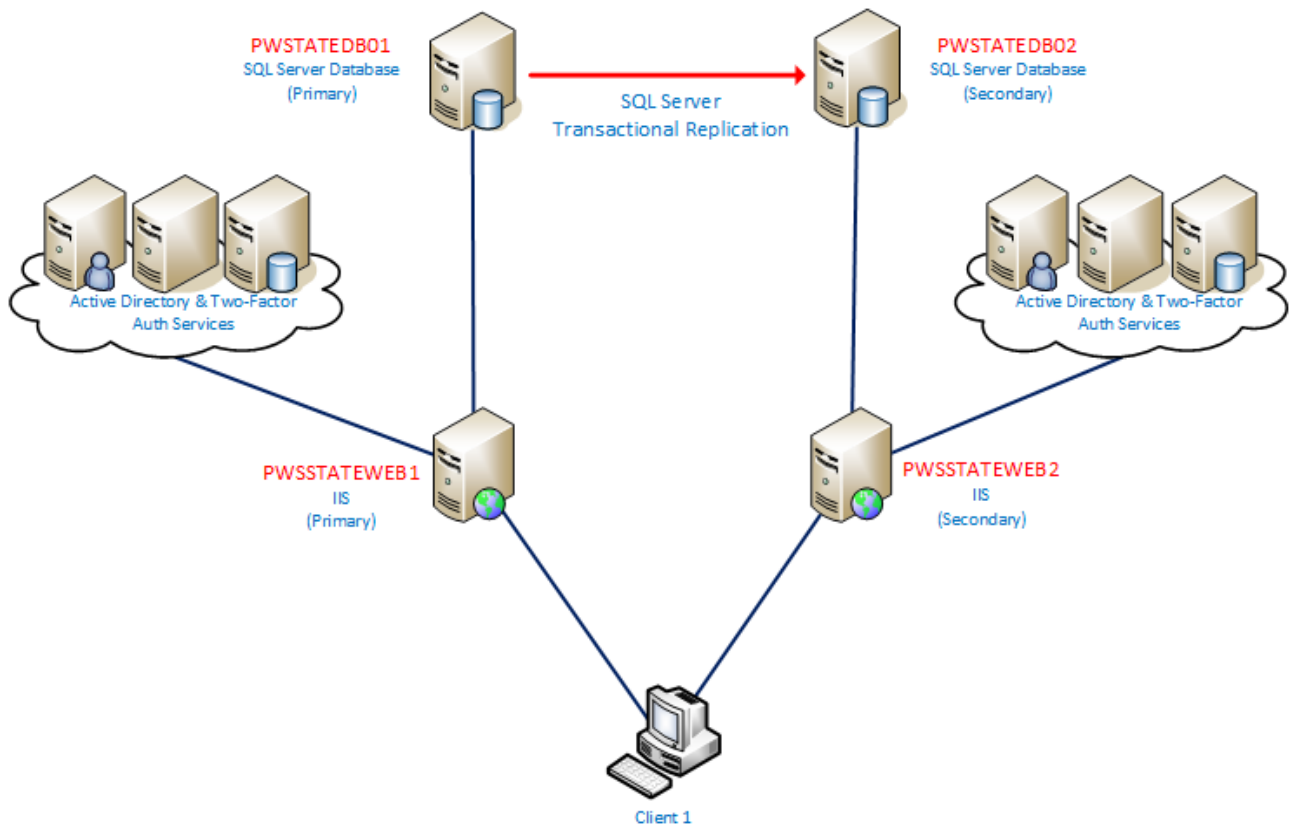
Note 2: If using Transactional Replication, only an Active/Passive configuration is possible.

3 Architectural Overview

The following detail describes both an Active/Passive, and Active/Active architectural design for the High Availability module, where two separate web and database servers are used, and also two different URLs to access both the Primary and High Availability sites.

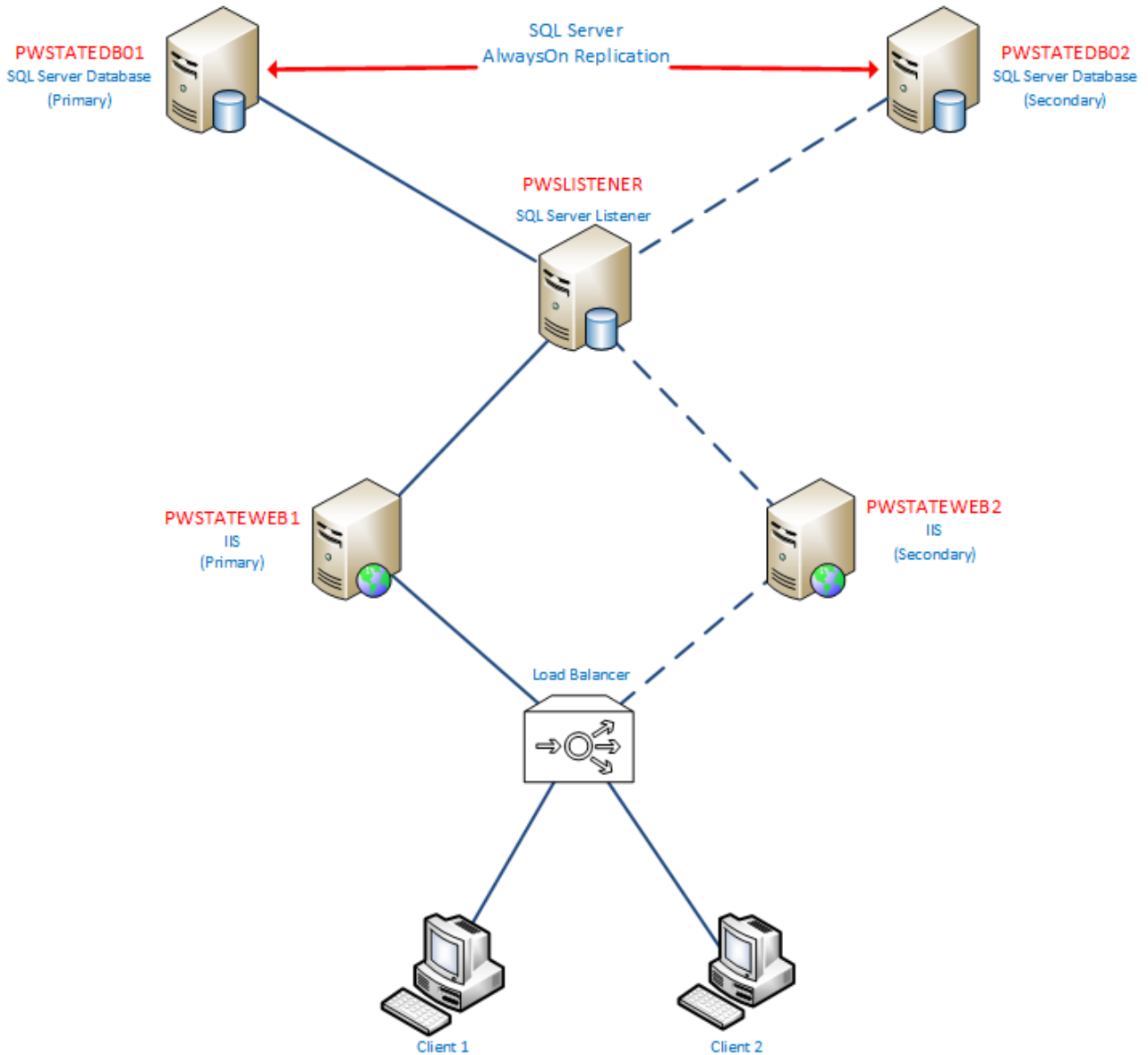
A summary of the Active/Passive design is:

- Requires two web servers, and two database servers
- Data is replicated in real-time, using SQL Server Transactional Replication
- The publisher of the replication needs to be SQL Server Standard or above
- The subscriber of the replication needs to be SQL Server Express or above
- Generally, you only ever access the primary web server, unless there is an extended outage, in which case you would need to point your browser to the URL of the HA server
- HA Server is read-only by default, but there are instructions provided to promote it to be the primary server if required
- There is no automatic failover between the two web servers, as this requires a hardware appliance-based load balancing solution to sit in front of the two web servers
- Below is an architectural diagram describing how the HA module works



A summary of the Active/Active design is:

- As per the diagram below, this shows the use of a Load Balancer for web traffic
- The Load Balancer monitors the availability of the Passwordstate web servers, and automatically fails over if one cannot be communicated with
- SQL Server Basic Availability, and Always On High Availability Groups, are used to monitor availability of both SQL Servers, and perform automatic failover in the event where one server becomes unavailable



4 SQL Server Considerations

Prior to installing the High Availability instance of Passwordstate, you must have a working replicated copy of your database.

If required, below are some instructions for installing and configuring either of the three SQL High Availability methods mentioned in '2. System Requirements – General'. These documents are included in your original download of Passwordstate, or you can download them again from our documentation page here - <https://www.clickstudios.com.au/documentation/default.aspx>

- SQL Server Always On Availability Groups (SQL_Server_AlwaysOn_Availability_Groups.pdf)
- SQL Server Basic Availability Groups (SQL_Server_Basic_Availability_Groups.pdf)
- SQL Server Transactional Replication (SQL_Server_Transactional_Replication.pdf)



Note: The SQL installation instructions are only a guide, and if you experience any issues configuring or using SQL HA, please contact Microsoft for support.

5 Installing Passwordstate

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

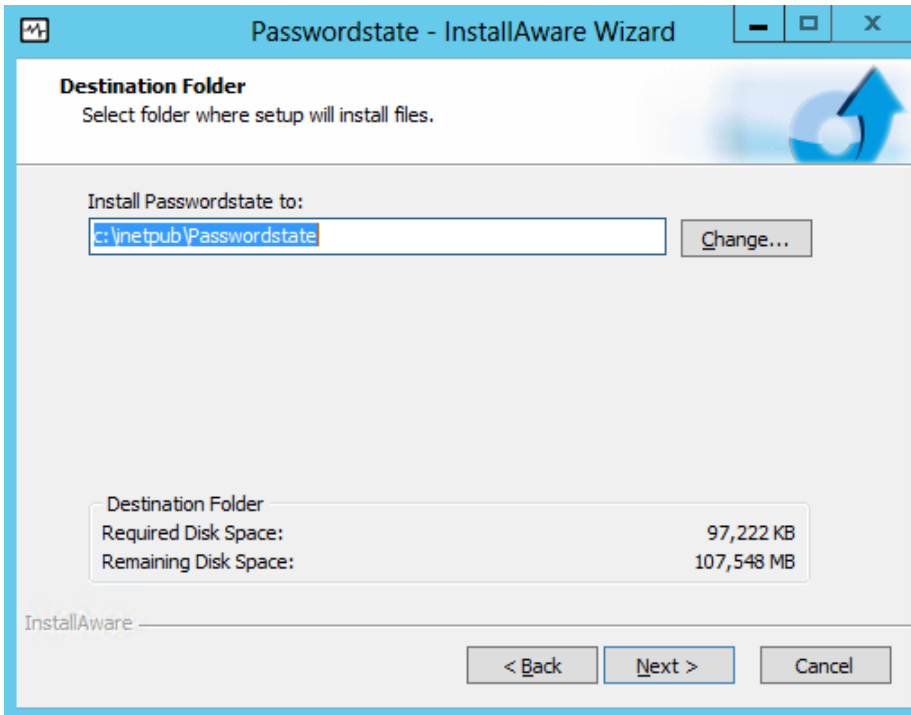
1. At the 'Passwordstate Installation Wizard' screen, click on the 'Next' button



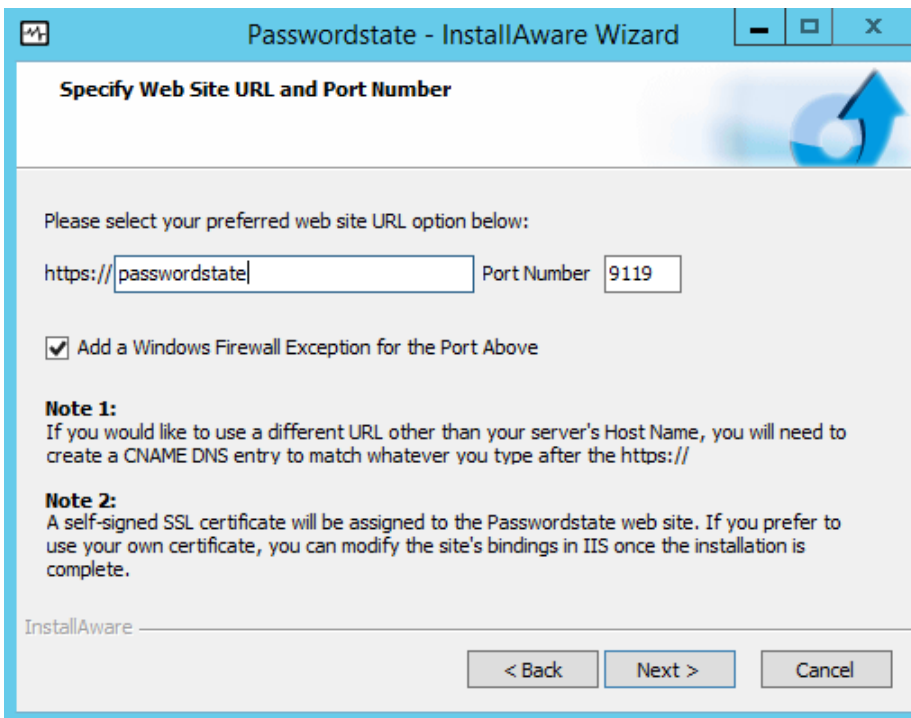
2. At the 'License Agreement' screen, tick the option 'I accept the terms in the License Agreement', then click on the 'Next' button



- 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 Web Site URL and Port Number' screen, specify the URL you would like to use, then click on the 'Next' button (You must have a functioning DNS entry to point to this URL)



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

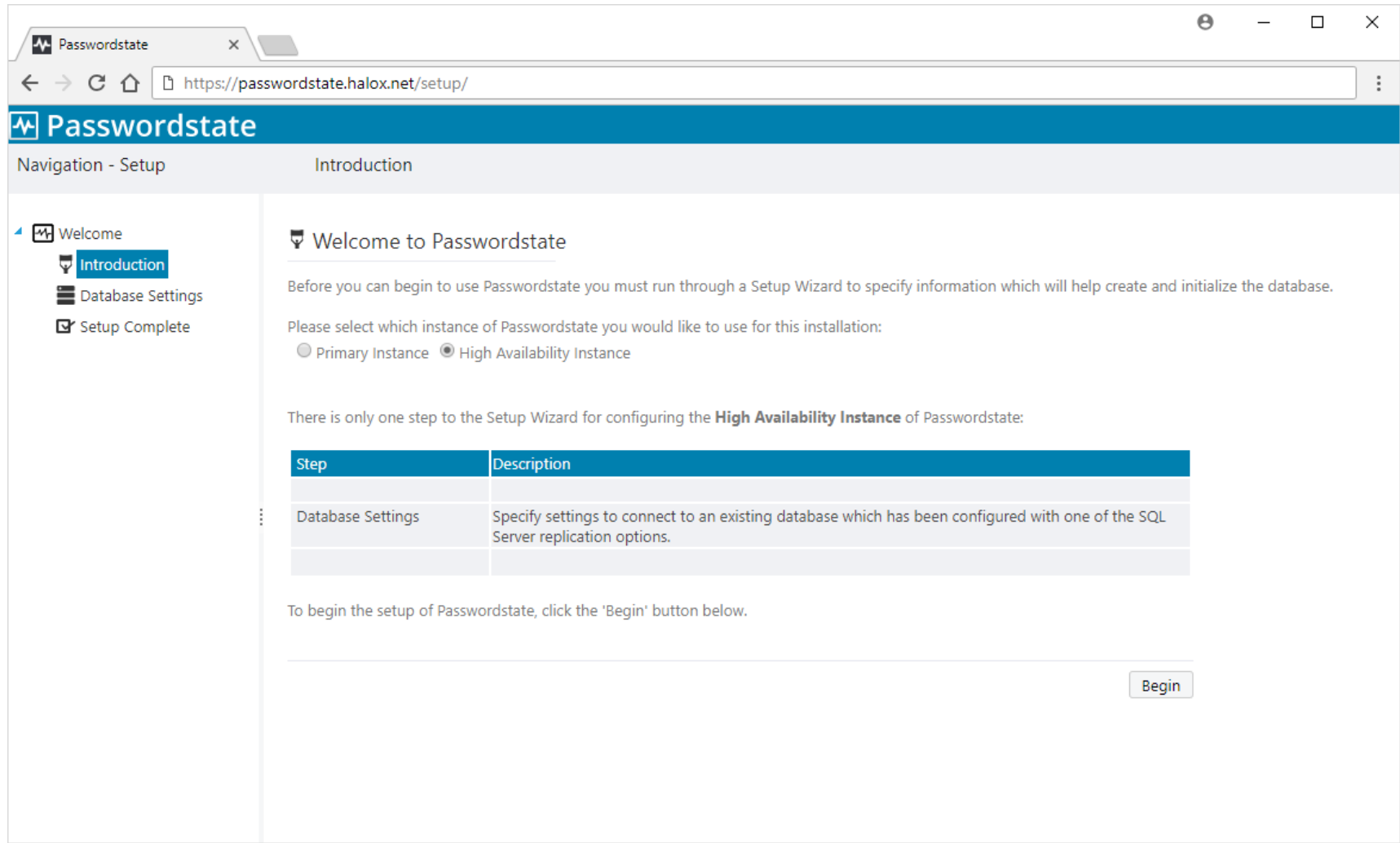


6. Once installed, click on the 'Finish' button

6 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 Windows Installer.

Click on the 'High availability Instance' option and you will be presented with the following screen.



The screenshot shows a web browser window with the URL `https://passwordstate.halox.net/setup/`. The page title is "Passwordstate" and the navigation menu includes "Welcome", "Introduction", "Database Settings", and "Setup Complete". The "Introduction" page is active, displaying a "Welcome to Passwordstate" message. It instructs the user to run a Setup Wizard and select an instance type. The "High Availability Instance" option is selected. A table lists the steps of the Setup Wizard, with "Database Settings" as the only step shown. A "Begin" button is located at the bottom right of the page.

Navigation - Setup Introduction

Welcome

- Introduction
- Database Settings
- Setup Complete

Welcome to Passwordstate

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

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

Primary Instance High Availability Instance

There is only one step to the Setup Wizard for configuring the **High Availability Instance** of Passwordstate:

Step	Description
Database Settings	Specify settings to connect to an existing database which has been configured with one of the SQL Server replication options.

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

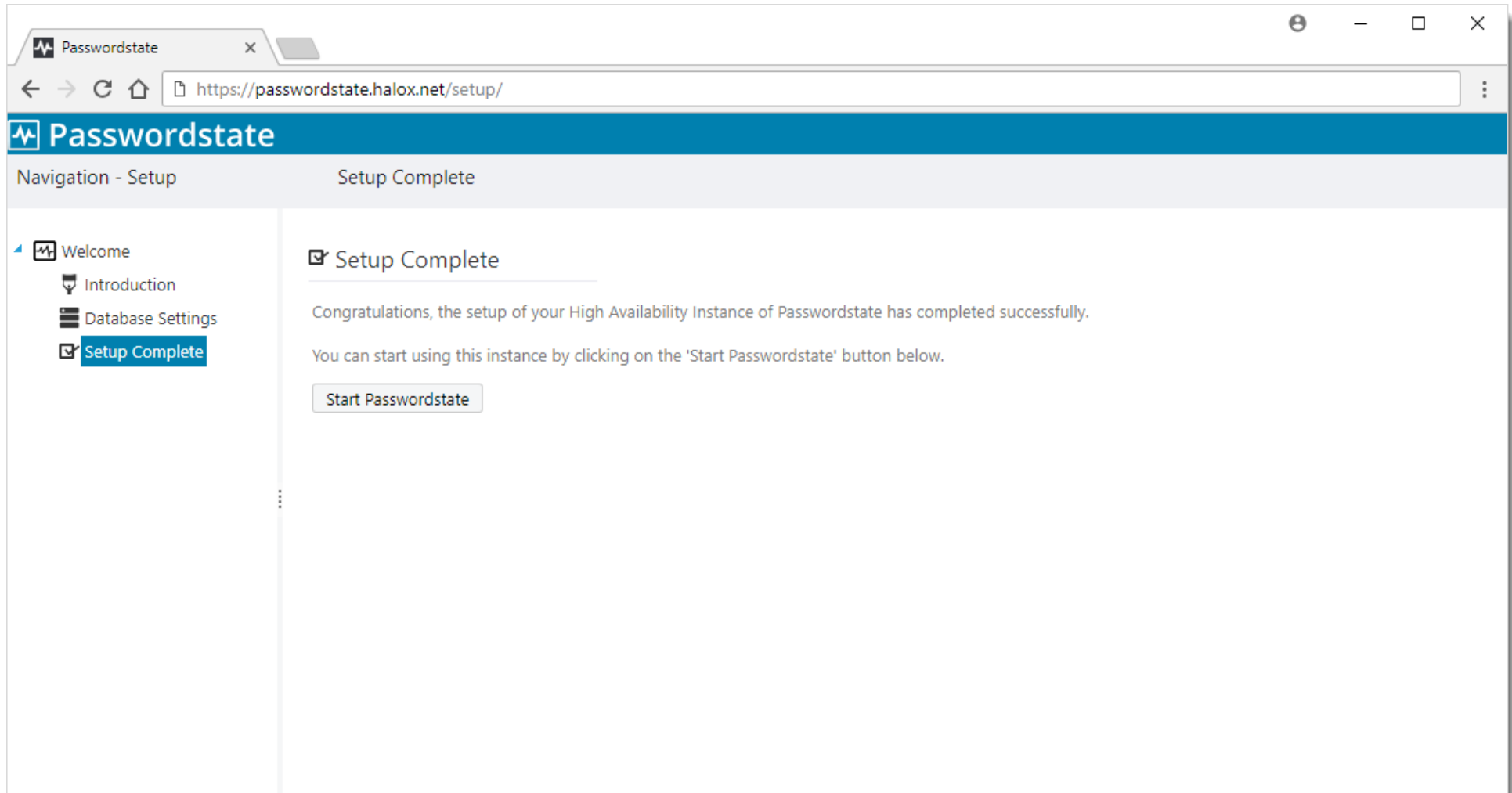
Begin

Database Settings – Connect to existing database – On this screen you will need to specify database settings to connect to your Passwordstate database. Please consider the following:

- You can either specify database connection settings to point directly to your database server, or to an SQL Listener if using Basic or Always On Availability Groups
- If you are wanting to connect using a Managed Service Account, you must first configure the Passwordstate IIS Application Pools to run under the identity of this MSA account
- You will need to copy across the GUID1, Secret1 & Secret2 values from your primary site's web.config file

The screenshot shows a web browser window with the URL `https://passwordstate.halox.net/setup/`. The page title is "Passwordstate" and the navigation menu includes "Welcome", "Introduction", "Database Settings" (which is highlighted), and "Setup Complete". The main content area is titled "Database Settings" and contains the following text: "To connect to an existing database, please specify details below as appropriate - this can be a connection directly to your SQL Server, or an SQL Listener. You must have already configured one of the supported SQL Replication methods before doing this." Below this text is a tab labeled "connect to existing database". The form contains several fields: "Active or Passive *" with radio buttons for "Passive" (selected) and "Active"; "Database Server Name *" and "SQL Server Instance Name" as text input fields; "Database Name *" with the value "passwordstate" entered; "Account Type" with radio buttons for "SQL Server Account" (selected) and "Managed Service Account"; "SQL Account Name" with the value "passwordstate_user" entered; and "Password" as a text input field. Below these fields is a section titled "Copy across the following settings from your Primary Server's web.config file - AppSettings section." with three text input fields for "GUID1 *", "Secret1 *", and "Secret2 *". At the bottom left, it says "Status: Not tested". At the bottom right, there are two buttons: "Test Connection" and "Next".

Setup Complete – The installation is now complete.



7 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)

8 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)