



Upgrade Instructions


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1. Upgrade Overview

This document will detail instructions for upgrading to the latest build of Passwordstate 9. It will also detail instructions for upgrading other modules if required.

Please reference the Upgrade Matrix section and the end of this document, to confirm if any dependant modules also need to be upgraded, when you upgrade your core Passwordstate installation.

 Note: If you are upgrading from a build prior to 9493, please also read the section “Build 9493 Database Considerations” below.

1 System Requirements - General

Please note the system requirements below, if you are upgrading from versions earlier than 9.

Web Server

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

- Microsoft Windows Server 2012, 2012 R2, 2016, 2019, 2022
- Windows 10, 11
- Internet Information Services (installed automatically as a role in the Windows Operating System)
- Microsoft SQL Server 2012 Native Client
- .NET Framework 4.7.2. or Higher
- PowerShell 5.0 or above
- Open JDK 17 or above (if using Browser based Remote Session Launcher)

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 update the database. SQL Server can be installed either on the same web server as Passwordstate, or on any other Windows Server in your environment.

Any versions of SQL Server can be used i.e., Express, Standard, Enterprise.

- Microsoft SQL Server 2012
- Microsoft SQL Server 2014
- Microsoft SQL Server 2016
- Microsoft SQL Server 2017
- Microsoft SQL Server 2019
- Microsoft SQL Server 2022

2. Backups and Checksum Validation

Prior to performing any upgrades of Passwordstate, it is strongly recommended you perform backups of your Passwordstate folder and database, and also check the Checksum of installer files you download from Click Studios' CDN network.

Backups

If using Passwordstate to perform backups, please refer to our 'Automatic Backup' documentation on the following page on our web site, if you are yet to configure this feature -


<https://www.clickstudios.com.au/documentation/>

Performing Checksum Validation

Downloading the Windows Installers to perform upgrades can be done via the following page on our web site - <https://www.clickstudios.com.au/passwordstate-checksums.aspx>.

On this page, the published checksums are also available, and below are instructions of how to validate the checksums using a PowerShell command.

Get-FileHash passwordstate.zip -Algorithm SHA256

 Note: There are only two files you would possibly need to download from Click Studios' CDN network, depending on what build number of Passwordstate you are currently using. Please refer to below instructions for further detail.

3. Upgrading Passwordstate Core Installation

The following instructions show how to upgrade your core installation of Passwordstate, with instructions for dependant modules below in this document.

- 🚩 Note 1: If your core Passwordstate product is already version 9, you can upgrade to the latest build of version 9 from the version you are currently running – there is no need to do multiple upgrades.
- 🚩 Note: If you are upgrading from a build prior to 9493, please also read the section “Build 9493 Database Considerations” below.

High Availability Considerations

If you have purchased and are using the High Availability module for Passwordstate, it is possible you may need to delete SQL Server Replication prior to upgrading your primary Passwordstate web server. This is a requirement if:

- You are using the older **SQL Server Transactional Replication** (not SQL Clustering, Basic or High Availability Groups, or Azure/Amazon SQL)
- And the ‘**Upgrade Dependency Matrix**’ below shows database schema changes since the build you are upgrading from

Upgrading Your Core Passwordstate Installation

1. If you are upgrading from a build earlier than 8995, then:
 - a. Download the file <https://cdn.clickstudios.com.au/version8/passwordstate.zip> (please validate the checksums), and extract the zip file
 - b. Run the **passwordstate.exe** as an Administrator (right click and Run as Administrator) on your Passwordstate web server – simply follow the on-screen instructions for the upgrade wizard
 - c. Browse to your Passwordstate URL, and finish the database upgrade phase of the upgrade – a screen will be presented to you when you login, to upgrade the database
 - d. Then follow Step 2 directly below, to now upgrade to the latest build of version 9
2. If you are upgrading from build 8995 or later, then:
 - a. Download the file <https://cdn.clickstudios.com.au/version9/passwordstate.zip> (please validate the checksums), and extract the zip file
 - b. Run the **passwordstate.exe** as an Administrator (right click and Run as Administrator) on your Passwordstate web server – simply follow the on-screen instructions for the upgrade wizard
 - c. Browse to your Passwordstate URL, and finish the database upgrade phase of the upgrade – a screen will be presented to you when you login, to upgrade the database

🚩 Note 1: Please refer to Section 11 below if you see a “Server Error in ‘/’ Application” error after performing the upgrade above

🚩 Note 2: If you are using Transactional Replication, and you see a notification on your database upgrade screen that replication still appears to exist, please execute the following commands using SQL Server Management Studio to clean up left over replication tables and data.


USE Master

EXEC sp_removedbreplication passwordstate

4. Upgrading High Availability Instance of Passwordstate

Once your primary site has been upgraded to the latest build of version 9, follow these instructions to upgrade your High Availability instance of Passwordstate

1. If using Transactional Replication, you would have deleted Transactional Replication as per the section '**High Availability Considerations**' above. You should now re-establish replication following section 4 & 5 of these instructions -
https://www.clickstudios.com.au/downloads/version9/SQL_Server_Transactional_Replication.pdf
2. If you are upgrading from a build earlier than 8995, then:
 - a. Follow Section 3.1 above to upgrade to build 8995, but there is no need to login to the UI once you have run this upgrader
 - b. Then manually delete the file c:\inetpub\passwordstate\App_JScript\cs_library-8537.min.js (this is just a test file we check during the upgrade of your primary site, to ensure it has been done correctly)
 - c. Follow section 3.2 above to upgrade to the latest release of version 9
3. If you are upgrading from build 8995 or later, then:
 - a. Follow section 3.2 above to upgrade to the latest release of version 9

 **Note:** When upgrading your High Availability webserver, you should never be prompted to upgrade the database. You should be able to log into Passwordstate and the version displayed in the User Interface will already be the latest version. If you are prompted to upgrade your database, there is something wrong with your SQL replication and you should investigate this before proceeding any further.

5. SQL Server Replication During Upgrades

During some upgrades of Passwordstate, it is possible large volumes of data need to be updated as part of the upgrade process.

If using SQL Server Replication, this can cause performance issues with the upgrades, and it is recommended your either remove replication (Transactional Replication) or pause replication (Availability Groups), prior to starting the upgrade process.

In the changelog for upgrades (<https://www.clickstudios.com.au/passwordstate-changelog.aspx>) it is documented where the database upgrades can take some time to complete – see screenshot below.

If you see this sort of warning in the changelog, please delete/pause replication before the upgrade, and then recreate/unpause after the upgrade is complete.

Passwordstate 9.7 - Build 9727 (15th March 2023) **DB SCHEMA UPDATES**

UPDATED Please note the database upgrade screen for this build may take some time to complete

- Added HMAC Hashing checks to TreeViewState tables
- When impersonating another user from the screen Administration -> User Accounts, drag and drop of folders and password lists will be disabled
- Automatically update the BaseURL to use https if it was set to use http
- Provided an updated Password Reset Portal Windows Credential Provider that no longer relies on Internet Explorer for its usage

6. Build 9493 Database Considerations

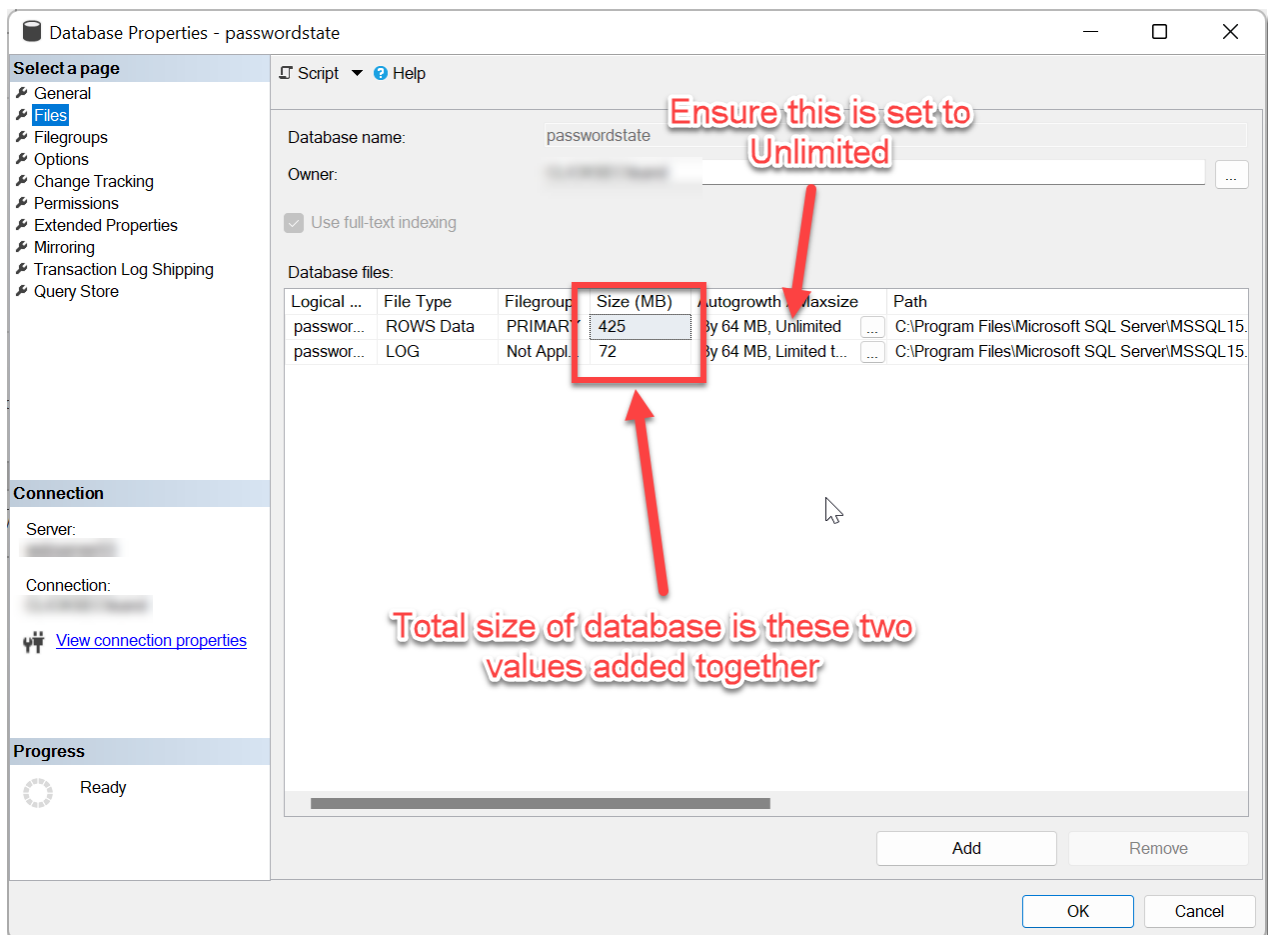
In Build 9493 of Passwordstate, Click Studios introduced support for Unicode character for our international customers. This change requires many fields in the database will be changed to a datatype of NVARCHAR.

This change will result in approximately 300% to 400% database growth, possibly even more in some cases, and the upgrade will take longer than normal. Some customers have seen the upgrade take up to 20 minutes, instead of just a couple which a normal upgrade takes to complete.

If you are upgrading from an earlier build than 9493, then please consider the following recommendations, to ensure a seamless upgrade experience.

Pre-Upgrade Considerations – Check Available Space

It is important that you have not only adequate free disk space for the upgrade, but also that you have not limited database growth within SQL Server for your Passwordstate database. To find the size of your database, right click it in SQL Management Studio Tools and select Properties:



In my example above, the database is just under 500mb in size, so you should ensure you have at least 2gb of disk space available before attempting this upgrade. Ideally you should free up as much space as possible.

Pre-Upgrade Considerations – Reduce Space within Database

There are a couple of methods to reduce the size of your database, prior to upgrading:

1 - Reduce Auditing Records

Reduce the number of Auditing records in the database. There is a configurable process in Passwordstate to move auditing records from the **Auditing** table, to the **AuditingArchive** table. If you generate a lot of auditing records with your usage of Passwordstate, then most likely the majority of the records will be in the **AuditingArchive** table. To check the number of rows you can run the following queries in SQL Server Management Studio:

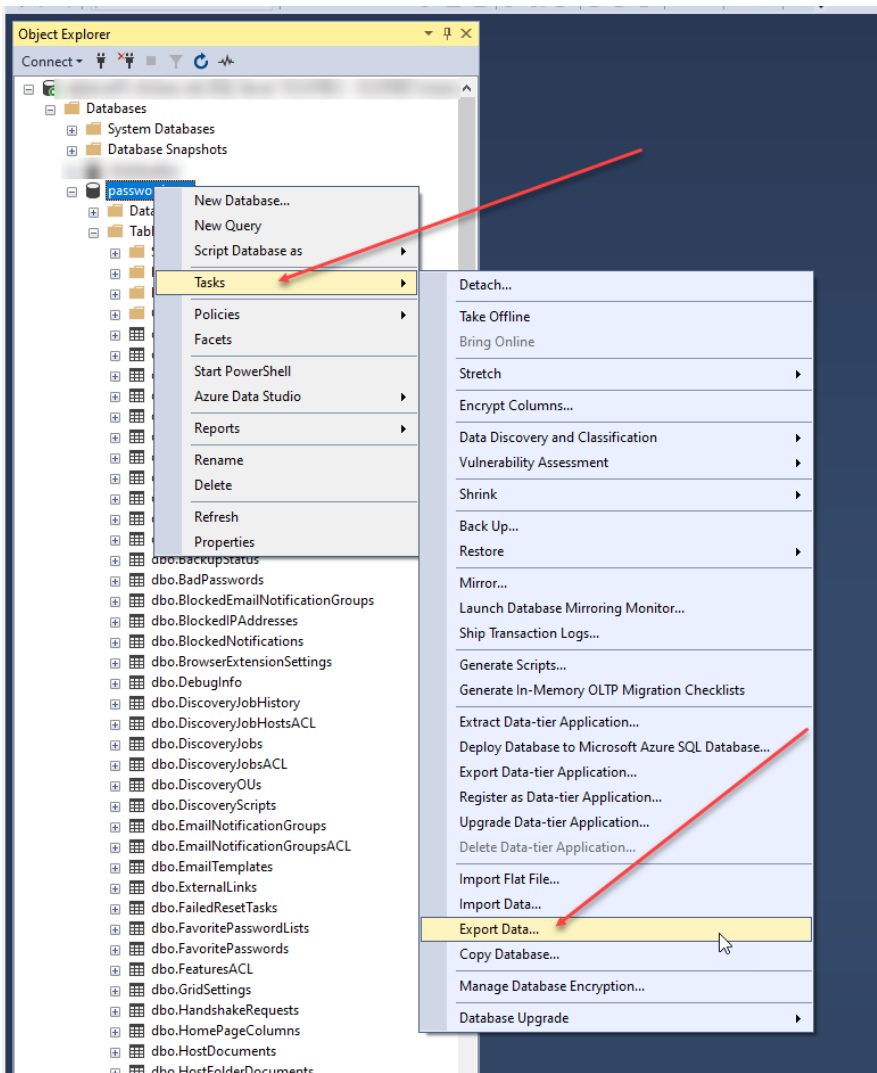
```
USE Passwordstate
SELECT COUNT(*) FROM Auditing
SELECT COUNT(*) FROM AuditingArchive
```

With our testing, 1 or 2 million records do not pose an issue with the upgrade.

If needed, below is a screenshot of how you can export your **AuditingArchive** table (if required for compliance reasons), and then a SQL command to delete all rows in this table:

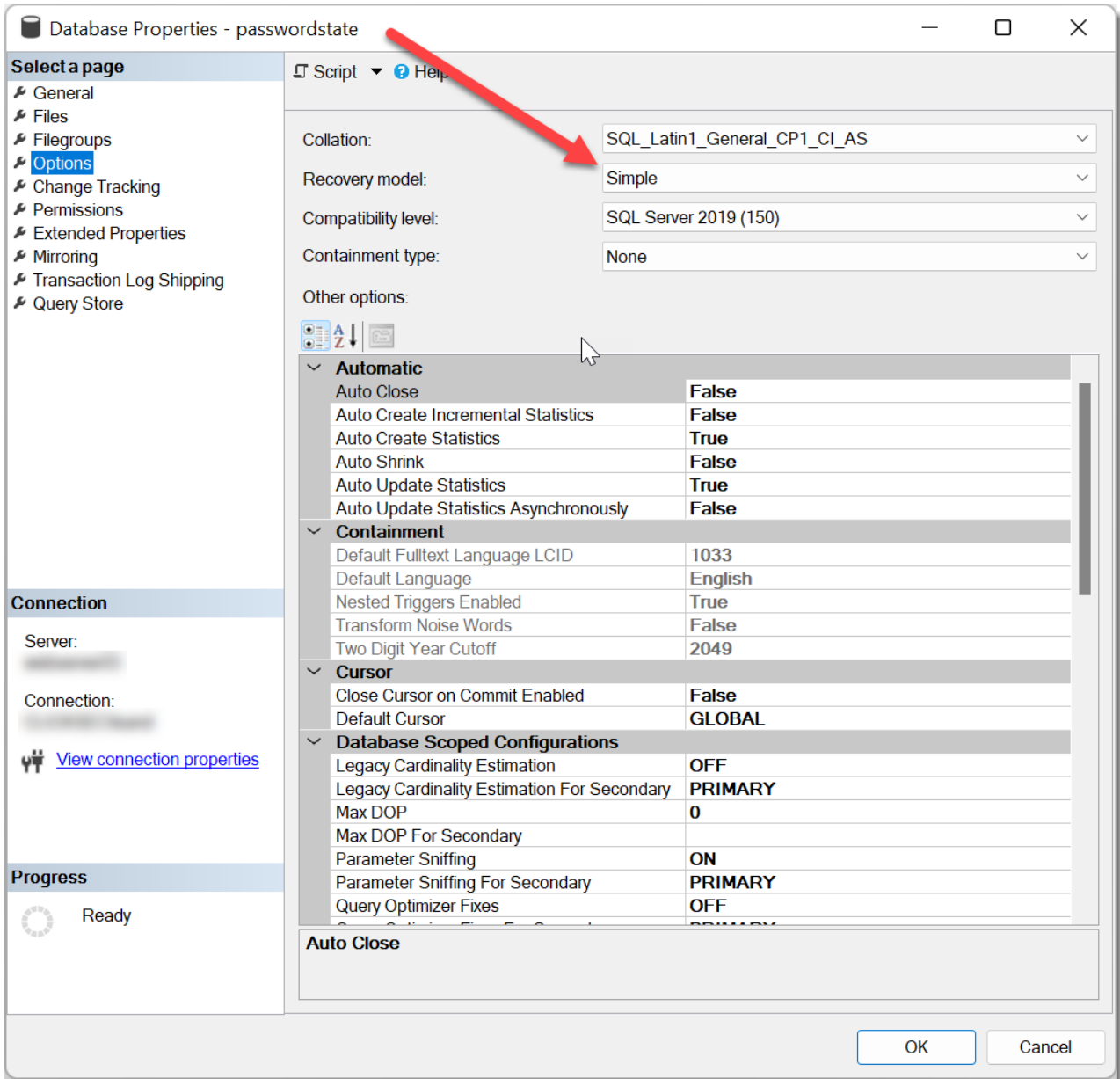
USE Passwordstate

TRUNCATE TABLE AuditingArchive



2 – Shrinking the Database

If you are not using any form of SQL Server replication, you can change the recover mode of the database to **Simple** as per the screenshot below – please check with your DBA prior to do this, to see if they are okay with this change – as it would prevent transaction log restores throughout the day, but does not prevent normal full backups and restores



Alternatively, you can run the following command in SQL Server Management Studio – this will try and shrink both the database file, and transaction log file, if possible:

DBCC SHRINKDATABASE (Passwordstate)

Post-Upgrade Considerations – Shrink Database Again

As the conversion to NVARCHAR will increase the size of your database transaction log, it is recommended you shrink the Passwordstate database again, by following one of the options mentioned above.

7. Troubleshooting Maintenance Mode User During an Upgrade

When you begin the upgrade process of Passwordstate, Maintenance Mode is enabled to ensure no other users are using the software, during the time of the upgrade.

Once the first stage of the upgrade process is complete, you will be logged out of Passwordstate, and asked to login a second time to complete the second phase of the database upgrade process.

If for any reason you are unable to login with the same account you enabled Maintenance Mode with, then please follow these instructions:

1. Using SQL Server Management Studio, execute the commands below:

USE Passwordstate

UPDATE SystemSettings SET MaintenanceModeUserID = ''

2. Now restart your browser, and access your Passwordstate URL again which will allow you to complete the upgrade.

8. App Server Upgrade Instructions

Please refer to the section '**Upgrades Dependency Matrix**' below to determine if you need to follow the instructions below to upgrade the Passwordstate App Server install.

In this upgrade Matrix, if there are any builds which indicate the App Server, Self-Destruct or Browser Extensions require an upgrade from the build you are currently using, then follow these instructions:

1. In your Passwordstate folder (typically **c:\inetpub\passwordstate**), you will see a sub-folder called **Downloads**.
2. Take a copy of the file **PasswordstateAppServer.exe**, and copy it across to the server where you have your App Server installed
3. Run **PasswordstateAppServer.exe** as an Administrator (right click and Run as Administrator), and follow the on-screen instructions for the upgrade wizard

9. Password Reset Portal Upgrade Instructions

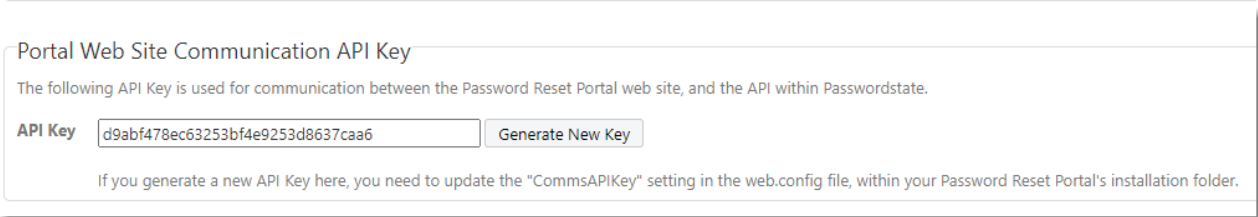
Please refer to the section 'Upgrades Dependency Matrix' below to determine if you need to follow the instructions below to upgrade the Password Reset Portal install. If needed, follow these instructions:

1. In your Passwordstate folder (typically `c:\inetpub\passwordstate`), you will see a sub-folder called **Downloads**.
2. Take a copy of the file **PasswordstateResetPortal.exe**, and copy it across to the server where you have your Password Reset Portal installed
3. Run **PasswordstateResetPortal.exe** as an Administrator (right click and Run as Administrator), and follow the on-screen instructions for the upgrade wizard

Important Upgrade Instructions

If upgrading your core Passwordstate installation from a version earlier than build **9611**, then there is a once off manual step required when upgrading your Password Reset Portal Installation. Please follow the instructions below for this:

1. In Passwordstate, go to the screen Administration -> Password Reset Portal Administration -> System Settings -> API tab
2. Copy the "Portal Web Site Communication API Key" value you see below in the screenshot



Portal Web Site Communication API Key

The following API Key is used for communication between the Password Reset Portal web site, and the API within Passwordstate.

API Key

If you generate a new API Key here, you need to update the "CommsAPIKey" setting in the web.config file, within your Password Reset Portal's installation folder.

3. In your Password Reset Portal folder, typically in the path of `c:\inetpub\PasswordstateResetPortal`, edit the web.config file and add the line you see in the screenshot below – with your API Key value. And save the file after making this change.

```
<add key="CommsAPIKey" value="d9abf478ec63253bf4e9253d8637caa6" />
```



```
<?xml version="1.0" encoding="utf-8" ?>
<configuration>
  <appSettings>
    <add key="webpages:Version" value="2.0.0.0" />
    <add key="webpages:Enabled" value="false" />
    <add key="PreserveLoginUrl" value="true" />
    <add key="ClientValidationEnabled" value="true" />
    <add key="UnobtrusiveJavaScriptEnabled" value="true" />
    <add key="webapibaseurl" value="https://passwordstate.mydomain.com/api/" />
    <add key="CommsAPIKey" value="d9abf478ec63253bf4e9253d8637caa6" />
  </appSettings>
  <system.web>
    <compilation targetFramework="4.5.1" />
  </system.web>
</configuration>
```

Note: If you tried to access your Password Reset Portal site before following the instructions above, you will need to restart Internet Information Services (IIS), or reboot your server, to avoid an error message about the APIKey not being found.

It is also recommended that you now encrypt the appSettings section of the web.config file, which you can do by following these instructions:

Encrypt appSettings Section

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

10. Remote Site Locations Agent Upgrade Instructions

With any deployed Remote Site Location Agents, these will automatically upgrade themselves within 10 to 15 minutes after you have upgraded your main Passwordstate server.

As of build 9300, the upgrade process has been changed to download upgrades from your Passwordstate web server itself, instead of from Click Studios' CDN network.

Because of this change in architecture, if you are upgrading Passwordstate from a build earlier than build 9300, you need to follow the instructions below to perform a manual upgrade – all subsequent upgrades will be automatic:

1. In your Passwordstate folder (typically **c:\inetpub\passwordstate**), you will see a sub-folder called Downloads.
2. Take a copy of the file **PasswordstateAgent.exe**, and copy it across to the server where you have your Agent installed
3. Open a DOS prompt as Administrator, and run the following command:
 - a. **PasswordstateAgent.exe /s**

11. Self Destruct Message Web Site Upgrade Instructions

There are two versions of the Self Destruct Message Web sites available, and each have different upgrade processes.

Standard Self Destruct

With the standard Self Destruct web site implementation, the web site itself communicates directly to your Passwordstate SQL Database. This site is embedded by default with your main Passwordstate install, so will get upgraded automatically when you upgrade the core product.

It can also be used as part of the Passwordstate App Server, and section “**App Server Upgrade Instructions**” above describes upgrading this feature, if you have deployed this separately from your Passwordstate install.

Push/Pull Self Destruct

Another version of Self Destruct is available called “**Push/Pull**”, in which the site uses a local SQLite database, and your core Passwordstate installation pushes and pulls all data to this SQLite database. This Self Destruct web site implementation does not require any access back to your Passwordstate SQL database.

To upgrade the Push/Pull version of the Self Destruct Message web site, follow these instructions:

1. In your Passwordstate folder (typically `c:\inetpub\passwordstate`), you will see a sub-folder called Downloads.
2. Take a copy of the file **PasswordstateSelfDestruct.exe**, and copy it across to the server where you have your Self Destruct Web Site installed
3. Run **PasswordstateSelfDestruct.exe** as an Administrator (right click and Run as Administrator), and follow the on-screen instructions for the upgrade wizard

12. Browser Based Remote Session Launcher Gateway

By default, the Browser Based Remote Session Launcher Gateway is embedded with your Passwordstate web site.

This Gateway can also be installed on a separate server to where you have Passwordstate installed if desired. If you have deployed the Gateway separately to your main Passwordstate web site, you will need to follow the instructions below to manually upgrade your Gateway.

1. Log into the server where the Gateway has been installed, stop the '**Passwordstate Gateway Maintenance**' and '**Passwordstate-Gateway**' Windows Services
2. From your core Passwordstate installation, copy the "html" folder across from the folder **C:\inetpub\Passwordstate\hosts\gateway** to where you have the Gateway installed (default path is C:\Program Files (x86)\Passwordstate Remote Session Gateway\gateway), and overwrite existing files
3. From your core Passwordstate installation, copy the following 4 files across from the folder **C:\inetpub\Passwordstate\hosts\gateway** to where you have the Gateway installed, and overwrite existing files:
 - a. License
 - b. Passwordstate-Gatewayw.exe
 - c. SparkGateway.exe
 - d. SparkGateway.jar
4. Restart the '**Passwordstate Gateway Maintenance**' and '**Passwordstate-Gateway**' Windows Services

Build 9627 Changes

If you are upgrading from a build of Passwordstate prior to 9627, then the following is required – there has been some architectural changes to the Remote Session Gateway:

1. As per point 2 above, you need to copy across the html folder to where you have the gateway installed separately
2. In the gateway.conf file, you need to:
 - a. Add the line "recdir.play.enable = true" as you see in the screenshot below
 - b. And update the "html" setting to be like the screenshot below
 - c. Then restart the "Passwordstate-Gateway" Windows Service

```
#listening port
port = 7273

#directory for session recording.
recdir = rec
recdir.play.enable = true

#default folder of where the html files are stored
html = html
```

13. Upgrade Dependency Matrix

The following table below shows which Passwordstate Build Numbers require schema changes in the database, or any other dependant modules which also require upgrading at the same time - after you have upgraded your installation of Passwordstate.

Some of these modules do get updates to them over time, but you are not necessarily forced to upgrade them when you upgrade your main Passwordstate instance.

| Build No | Database Schema Updates | App Server | Mobile Apps | Password Reset Portal | Remote Site Locations Agent | Browser Extensions | Self Destruct | Remote Session Launcher Gateway |
|----------|-------------------------|------------|-------------|-----------------------|-----------------------------|--------------------|---------------|---------------------------------|
| 9823 | Yes | No | No | No | No | No | No | No |
| 9811 | Yes | Yes | No | No | Yes | No | No | No |
| 9795 | Yes | No | No | No | No | No | No | No |
| 9786 | No | No | No | No | No | Yes | No | No |
| 9785 | Yes | Yes | No | Yes | No | Yes | No | Yes |
| 9753 | No | No | No | No | No | No | No | No |
| 9737 | No | No | No | No | No | No | No | No |
| 9735 | No | No | No | No | No | No | No | No |
| 9727 | Yes | No | No | No | No | No | No | No |
| 9715 | No | No | No | No | No | No | No | No |
| 9708 | No | No | No | No | No | No | No | No |
| 9700 | Yes | Yes | No | No | No | No | No | No |
| 9665 | No | No | No | No | No | No | No | No |
| 9661 | Yes | No | No | No | No | No | No | No |

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| | | | | | | | | |
|------|-----|-----|-----|-----|-----|----|-----|-----|
| 9653 | No | No | No | No | Yes | No | No | No |
| 9630 | No | No | No | No | No | No | No | No |
| 9627 | Yes | Yes | No | Yes | Yes | No | No | Yes |
| 9611 | Yes | No | No | Yes | Yes | No | No | No |
| 9595 | No | No | No | No | No | No | No | No |
| 9593 | Yes | Yes | No | No | No | No | No | No |
| 9583 | Yes | Yes | No | Yes | Yes | No | No | Yes |
| 9535 | No | Yes | No | Yes | Yes | No | Yes | No |
| 9533 | No | No | No | No | No | No | No | No |
| 9531 | No | No | No | No | Yes | No | No | No |
| 9519 | Yes | No | No | No | No | No | No | No |
| 9512 | Yes | No | No | No | No | No | No | No |
| 9500 | No | No | No | No | No | No | No | No |
| 9493 | Yes | Yes | Yes | Yes | No | No | No | No |
| 9471 | Yes | No | No | No | Yes | No | No | No |
| 9455 | Yes | No | No | No | No | No | No | No |
| 9435 | Yes | Yes | Yes | No | No | No | Yes | No |
| 9414 | No | No | No | Yes | No | No | No | No |
| 9400 | Yes | No | No | Yes | No | No | No | No |
| 9381 | Yes | No | No | No | Yes | No | No | No |
| 9360 | No | No | No | No | No | No | No | No |
| 9350 | Yes | No | No | No | Yes | No | No | No |
| 9300 | Yes | Yes | Yes | Yes | Yes | No | Yes | Yes |
| 9117 | Yes | No | No | No | Yes | No | No | No |

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| | | | | | | | | |
|------|-----|-----|-----|-----|-----|----|-----|-----|
| 9112 | Yes | No | No | No | No | No | No | No |
| 9100 | No | No | No | No | No | No | No | No |
| 9073 | No | No | No | No | No | No | No | No |
| 9065 | Yes | No | No | No | No | No | No | No |
| 9050 | Yes | Yes | Yes | Yes | Yes | No | Yes | Yes |
| 9000 | Yes | Yes | Yes | Yes | Yes | No | Yes | Yes |