

# ADSS Web RA Server 2.9.2

# Installation

Guide

# ASCERTIA LTD

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# **Table of Contents**

1 In	ntroduction	3
1.1	Scope	3
1.2	Intended Readership	3
1.3	Technical Support	3
1.4	Glossary	4
2 S	ystem Requirements	5
2.1	Hardware Prerequisites	5
2.2	Software Prerequisites	
2.3	Application Development feature in IIS	7
2.4	Microsoft .Net Core 8.0.3. Runtime & Hosting Bundle	8
2.5	Microsoft IIS URL Rewrite Module 2.1	
2.6	Unlock system.webServer/serverRuntime section in IIS	12
2.7	SMTP Server	13
2.8	Database	13
3 Ir	nstallation Modules	14
4 A	DSS Web RA Installation	15
4 A		
<b>4 A</b>	Fresh Installation of ADSS Web RA	
-		15
4.1	Fresh Installation of ADSS Web RA	15 27
4.1 4.2	Fresh Installation of ADSS Web RA Installing ADSS Web RA with A Load-Balanced Configuration	15 27 35
4.1 4.2 4.3	Fresh Installation of ADSS Web RA Installing ADSS Web RA with A Load-Balanced Configuration Installing ADSS Web RA with an Existing Database	15 27 35 43
4.1 4.2 4.3 4.4	Fresh Installation of ADSS Web RA Installing ADSS Web RA with A Load-Balanced Configuration Installing ADSS Web RA with an Existing Database Upgrading ADSS Web RA	15 27 35 43 47
4.1 4.2 4.3 4.4 4.5	Fresh Installation of ADSS Web RA Installing ADSS Web RA with A Load-Balanced Configuration Installing ADSS Web RA with an Existing Database Upgrading ADSS Web RA Upgrade Web RA by adding modules	15 27 35 43 47 52
4.1 4.2 4.3 4.4 4.5 4.6	Fresh Installation of ADSS Web RA Installing ADSS Web RA with A Load-Balanced Configuration Installing ADSS Web RA with an Existing Database Upgrading ADSS Web RA Upgrade Web RA by adding modules Changing Database Credentials for an Existing Installation	15 27 35 43 43 52 54
4.1 4.2 4.3 4.4 4.5 4.6 4.7 4.8	Fresh Installation of ADSS Web RA Installing ADSS Web RA with A Load-Balanced Configuration Installing ADSS Web RA with an Existing Database Upgrading ADSS Web RA Upgrade Web RA by adding modules Changing Database Credentials for an Existing Installation Regular Release Installation	15 27 35 43 43 47 52 54 60
4.1 4.2 4.3 4.4 4.5 4.6 4.7 4.8 5 A	Fresh Installation of ADSS Web RA Installing ADSS Web RA with A Load-Balanced Configuration Installing ADSS Web RA with an Existing Database Upgrading ADSS Web RA Upgrade Web RA by adding modules Changing Database Credentials for an Existing Installation Regular Release Installation Uninstalling Regular Release	15 27 35 43 47 52 54 60 <b>65</b>
4.1 4.2 4.3 4.4 4.5 4.6 4.7 4.8 5 A	Fresh Installation of ADSS Web RA Installing ADSS Web RA with A Load-Balanced Configuration Installing ADSS Web RA with an Existing Database Upgrading ADSS Web RA Upgrade Web RA by adding modules Changing Database Credentials for an Existing Installation Regular Release Installation Uninstalling Regular Release	15 27 35 43 47 52 54 60 65 67
4.1 4.2 4.3 4.4 4.5 4.6 4.7 4.8 5 A 6 A	Fresh Installation of ADSS Web RA Installing ADSS Web RA with A Load-Balanced Configuration Installing ADSS Web RA with an Existing Database Upgrading ADSS Web RA Upgrade Web RA by adding modules Changing Database Credentials for an Existing Installation Regular Release Installation Uninstalling Regular Release DSS Web RA Uninstallation ppendix	15 27 35 43 47 52 54 60 <b>65</b> 67
4.1 4.2 4.3 4.4 4.5 4.6 4.7 4.8 5 A 6 A 6.1	Fresh Installation of ADSS Web RA Installing ADSS Web RA with A Load-Balanced Configuration Installing ADSS Web RA with an Existing Database Upgrading ADSS Web RA Upgrade Web RA by adding modules Changing Database Credentials for an Existing Installation Regular Release Installation Uninstalling Regular Release <b>DSS Web RA Uninstallation</b> Troubleshooting	15 27 35 43 47 52 54 60 <b>65</b> <b>67</b> 67 69
4.1 4.2 4.3 4.4 4.5 4.6 4.7 4.8 5 A 6 A 6.1 6.2	Fresh Installation of ADSS Web RA Installing ADSS Web RA with A Load-Balanced Configuration Installing ADSS Web RA with an Existing Database Upgrading ADSS Web RA Upgrade Web RA by adding modules Changing Database Credentials for an Existing Installation Regular Release Installation Uninstalling Regular Release DSS Web RA Uninstallation ppendix Troubleshooting Configurations used for Simple Certificate Enrollment Protocol (SCEP)	15 27 35 43 47 52 54 60 <b>65</b> 67 67 69 70
4.1 4.2 4.3 4.4 4.5 4.6 4.7 4.8 5 A 6.1 6.2 6.3	Fresh Installation of ADSS Web RA Installing ADSS Web RA with A Load-Balanced Configuration Installing ADSS Web RA with an Existing Database Upgrading ADSS Web RA Upgrade Web RA by adding modules Changing Database Credentials for an Existing Installation Regular Release Installation Uninstalling Regular Release <b>DSS Web RA Uninstallation</b> <b>ppendix</b> Troubleshooting Configurations used for Simple Certificate Enrollment Protocol (SCEP) SSL Certificates	15 27 35 43 47 52 54 60 67 67 67 69 70 73

# **1** Introduction

Registration Authority (RA) is another important component of PKI along with Certificate Authority (CA). CA is primarily responsible to create and revoke certificates, but complex business scenarios demand more than just the creation of certificates. Their responsibilities now include but not limited to managing users, certificate creation requests and revocation of certificates.

Businesses in the modern world require strong control over these processes along with the complete audit trail, to maintain the irrefutable evidence of these activities for future. Such additional controls and management are covered by an RA. An RA is therefore responsible to verify a user and their certificate request, and then inform the CA to issue the requested certificate.

An RA receives a request for digital certificate and verifies the user requesting the certificate. The user verification can be done manually through face to face interaction or electronically by using other mediums like phone, video conferencing, mail or courier that is acceptable to the RA as a secured medium. Once RA approves the user, it informs the CA to issue the certificate for the user. The RA then obtains the user certificate from the CA, and sends it to the user using a secure medium.

# 1.1 Scope

This manual describes how to install ADSS Web RA Server.

ADSS Web RA comprises five components and the installation procedure for all are covered herein:

- Web interface that provides user services on desktop browsers.
- Admin console that provides system administration and configuration.
- **API** that utilises the ASP.NET Web API framework to provide a REST architecture.
- **Device** is used to manage device enrolment for certificate creation.
- **Windows Enrolment** is used to manage certificate renewal or auto-enrolment on a Windows machine.

# **1.2 Intended Readership**

This manual is intended for administrators responsible for installation and initial configuration. It is assumed that the reader has a good understanding of web applications running on IIS, digital signatures, digital certificates and IT security.

### **1.3 Technical Support**

If technical support is required, Ascertia has a dedicated support team providing debugging and integration assistance as well as general customer support. Ascertia Support can be accessed through <u>Ascertia Ticketing System</u> or email address: <u>support@ascertia.com</u>

Ascertia provides formal support agreements with all product sales. Contact <u>sales@ascertia.com</u> for further details.

A Product Support Questionnaire should be completed in order to provide Ascertia Support having information about your system environment, along with details of any issues encountered. When requesting help, it is always important to confirm these details:

- System platform.
- ADSS Web RA version number.
- Details of the specific issue and relevant steps taken to reproduce it if possible.
- Database vendor, version and patch level.
- Product log files.

# 1.4 Glossary

ADSS Web RA	A short form of Unified Web Registration Authority
Cert	A short form of Digital Certificate
DBMS	Database Management System
HSM	Hardware Security Module
НТТР	Hyper Text Transfer Protocol
HTTP/S	HTTP over SSL/TLS connection
SSL	Secure Sockets Layer



# 2 System Requirements

System Requirements includes hardware and software requirements both.

## 2.1 Hardware Prerequisites

Components	ts Requirements			
Hard Disk Space	• 200 GB (Mínimum)			
Memory	16 GB (Mínimum)			
	• 24 GB (If the number of concurrent users is higher)			
	• 32 GB (If the database is also deployed on the same system as			
	the ADSS Web RA)			
Processor	A modern multi-core CPU such as Xeon E3-XXXX or E5-XXXX series is recommended			
Processor Type	• x64			
HSM (Optional)	Thales Luna Network, PCIe, and USB			
	Entrust nShield Solo XC, Connect XC, and nShield EDGE			
	Utimaco CryptoServer SE Gen2			
	Microsoft Azure Key Vault			
	Amazon Cloud HSM			

### 2.2 Software Prerequisites

Component	Requirements
Operating Systems	Follow this link to view details about supported OS:
	https://manuals.ascertia.com/WebRA-v2.9.2/ADSS-WebRA-
	Server-Platform-Support.pdf
Microsoft IIS	• IIS 10
	Application Development feature in IIS
IIS Rewrite Module	• v2.1
.Net Framework	.Net Framework 4.8. or above
.Net Core Runtime & Hosting Bundle	ASP.NET Core Runtime 8.0 or above



Database Server Web Brower (for end-users and administrators)	<ul> <li>Follow this link to view details about Database Server: <u>https://manuals.ascertia.com/WebRA-v2.9.2/ADSS-WebRA-Server-Platform-Support.pdf</u></li> <li>Follow this link to view details about Web Browsers: <u>https://manuals.ascertia.com/WebRA-v2.9.2/ADSS-WebRA-Server-Platform-Support.pdf</u></li> </ul>
ADSS Server	<ul> <li>ADSS Web RA uses ADSS Server under the hood to create and manage certificates for the end user as a CA. ADSS Server can be installed on a separate machine or on the same machine for testing and proof of concept. It is recommended to keep the ADSS installation on a separate machine for a production environment. For further requirements related to the installation of ADSS Server, please refer to the installation guide of ADSS Server.</li> <li>ADSS Server 6.6 or above</li> </ul>
DMZ Proxy Systems	<ul> <li>A DMZ proxy server is recommended to provide enhanced security for ADSS Web RA. Supported web servers are:</li> <li>Windows Server + IIS, Apache or IBM HTTP Server</li> <li>Linux + Apache or IBM HTTP Server</li> <li>It is recommended to use a reasonable CPU, 4 GB RAM (Minimum), 2000 MB Disk Space for the web server machine. ADSS Web RA and ADSS Server support network proxies to allow authenticated access to external services. Certificate generation with local smartcards or USB tokens requires ADSS Server Go&gt;Sign Service.</li> </ul>

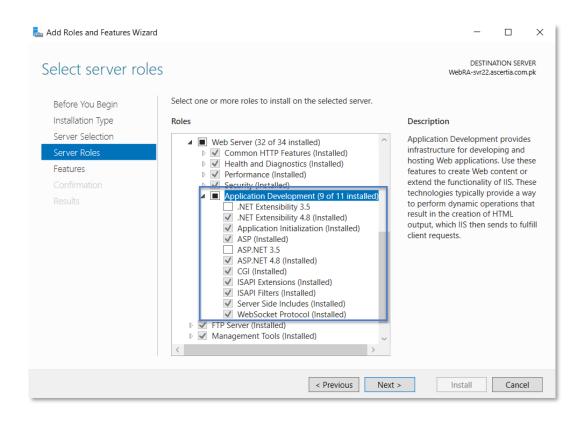
For testing and proof of concepts, ADSS Server and ADSS Web RA can be installed on the same machine along with the database server. However, for optimal performance in a production environment, it is always recommended to install them on separately dedicated machines.

The details given above are the minimum set of requirements; for higher concurrent use of the application the system requirements may vary based on the load and performance expectations.



## 2.3 Application Development feature in IIS

Enable the following features in IIS on the deployment machine:





### 2.4 Microsoft .Net Core 8.0.3. Runtime & Hosting Bundle

**2.4.1** Download the latest version of Microsoft .Net Core i.e. Microsoft .Net Core 8.0.3. Runtime and Hosting Bundle from the following link:

Microsoft .Net Core 8.0.3. Runtime & Hosting Bundle

**2.4.2** Download the Hosting Bundle installer.

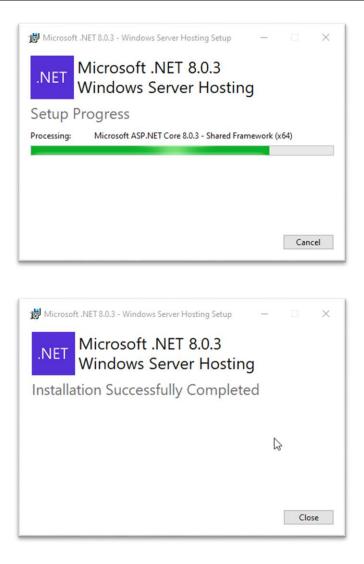
A 19 A	CDU -				
	is - SDK ⊙ 3.0.203			s - Runtime ⊙ JFT Core Runtime	803
					un existing web/server applications. On Windows
os	Installers	Binaries	we recom		ndle, which includes the .NET Runtime and IIS
Linux	Package manager instructions	Arm32   Arm32 Alpine   Arm64   Arm64 Alpine   x64   x64 Alpine	support.		
macOS	<u>Arm64   x64</u>	Arm64   x64	18.0.2404	ne support (ASP.NET Core Modu	le v2)
Windows	Arm64   x64   x86   winget instructions	<u>Arm64   x64   x86</u>	os	Installers	Binaries
All	dotnet-install scripts		Linux	Package manager instructions	Arm32   Arm32 Alpine   Arm64   Arm64 Alpin   x64   x64 Alpine
winget instructions All dotnet-install scripts ncluded runtimes NET Runtime 8.0.3		macOS		Arm64   x64	
	ore Runtime 8.0.3		Windows	Hosting Bundle   x64   x86	Arm64   x64   x86
NET Desk	top Runtime 8.0.3			winget instructions	
anguage	support		NET	Desktop Runtime	803
.# 12.0					un existing Windows desktop applications. This
# 8.0					
	ic 16.9			cludes the .NET Runtime; you do	
fisual Bas	ic 16.9 3.0.202				
fisual Bas		Binaries	release in	Installers	on't need to install it separately. Binaries
fisual Bas	3.0.202	Binaries Arm32   Arm32 Alpine   Arm64   Arm64 Alpine   x64   x64 Alpine	os Windows	Installers	on't need to install it separately. Binaries
risual Bas SDK 8 os Linux	3.0.202 Installers	Arm32   Arm32 Alpine   Arm64   Arm64 Alpine	os Windows .NET The .NET	Installers Installers Arm64   x64   x86   winget Runtime 8.0.3 Runtime contains just the compon	bin't need to install it separately. Binaries instructions ents needed to run a console app. Typically, you'd
risual Basi	3.0.202 Installers Package manager instructions Arm64   x64 Arm64   x64   x86	Arm32   Arm32 Alpine   Arm64   Arm64 Alpine   x64   x64 Alpine	os Windows .NET The .NET	Installers Arm64   x64   x86   winget Runtime 8.0.3	bin't need to install it separately. Binaries instructions ents needed to run a console app. Typically, you'd
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risual Bas SDK 8 os Linux macOS Windows All risual Stu	3.0.202 Installers Package manager instructions Arm64   x64 Arm64   x64   x86   winget instructions	Arm32   Arm32 Alpine   Arm64   Arm64 Alpine   x64   x64 Alpine Arm64   x64	release in OS Windows .NET The .NET I also instal OS	Installers	ents needed to run a console app. Typically, you'd instructions Binaries

2.4.1. Once downloaded, execute the installer by executing dotnet-hosting-8.0.3-win.exe

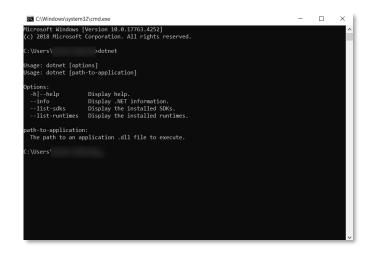


**2.4.2.** The setup will begin and take a few minutes to complete.





- **2.4.3.** Once the installation process is complete, click **Close**.
- **2.4.4.** To test if the installation was correct and components are reachable, run command line and type the following command:





**2.4.5.** Now, restart your machine to apply these changes effectively.

### 2.5 Microsoft IIS URL Rewrite Module 2.1

2.5.1. Download Microsoft IIS URL rewrite module 2.1 from the following link:

#### Microsoft IIS URL Rewrite Module 2.1

**2.5.2.** Navigating to this URL will present with the following screen:



2.5.3. Scroll down to find a list of links available for download.

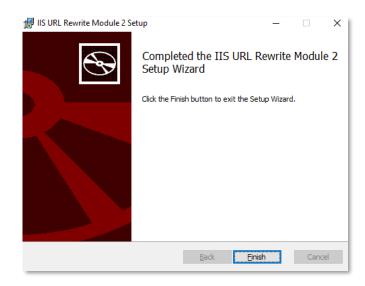
Download URL Rewrite Module 2.1	
• English: x86 installer / x64 installer	
German: x86 installer / x64 installer	
Spanish: x86 installer / x64 installer	
French: x86 installer / x64 installer	
Italian: x86 installer / x64 installer	
Japanese: x86 installer / x64 installer	
Korean: x86 installer / x64 installer	
Russian: x86 installer / x64 installer	
Chinese Simplified: x86 installer / x64 installer	
Chinese Traditional: x86 installer / x64 installer	

**2.5.4.** Download **x64 installer** with your preferred language. For this documentation it's **English**. Start the installation by executing the downloaded file in administrator mode.





**2.5.5.** Accept the terms in the license agreement and click **Install** to proceed, the installation will take few minutes:

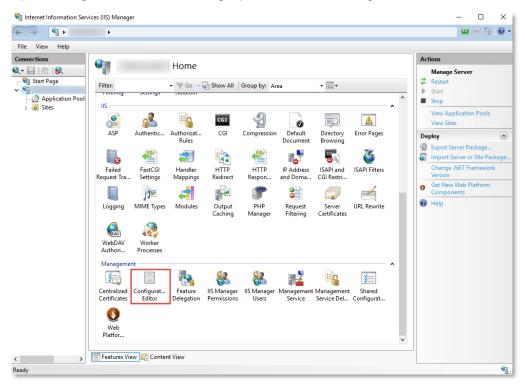


**2.5.6.** Click **Finish** once the installation process is complete.



### 2.6 Unlock system.webServer/serverRuntime section in IIS

- 2.6.1. Launch the IIS Manager
- 2.6.2. Select Server from left panel
- **2.6.3.** Open **Configuration Editor** from right pane under the Management section.



2.6.4. Unlock system.webServer/serverRuntime section in the Configuration Editor.

← → 📲 ו	۶.		🖾 🖂 🔞
File View Help			
Connections			Actions
s- 🔒 🖄 🕵	Configuration Editor		Apply
📲 Start Page	Section: system.webServer/serverRuntim	e v	Cancel
1	<ul> <li>Deepest Path: MACHINE/WEBROO</li> </ul>	TAPPHOST	Generate Script
— Application Pools > - i Sites	alternateHostName	I/AFTIOST	Configuration
> - OILES	appConcurrentRequestLimit	5000	Search Configuration
	authenticatedUserOverride	UseAuthenticatedUser	Section
	enabled	True	
	enableNagling	False	Unlock Section
	frequentHitThreshold	2	Help
	frequentHitTimePeriod	00:00:10	
	maxRequestEntityAllowed	4294967295	
	uploadReadAheadSize	49152	

The installation process for prerequisites is complete.



## 2.7 SMTP Server

ADSS Web RA uses email as the primary notification medium. User registration, and all notifications are sent via SMTP. Hence, it is a critical part of the architecture and deployment. Details required are:

- Hostname/IP address of SMTP server
- Listening Port of SMTP server
- TLS/SSL authentication to communicate with SMTP server (if required)
- Username and password to authenticate to SMTP server (if required)
- Email from Address for notifications sent from ADSS Web RA
- Email to Address for alerts and warnings sent by ADSS Web RA
- Email Subject for alerts and warnings sent by ADSS Web RA



If there is no alternative it is possible to still use ADSS Web RA. However, this involves copying the notification emails directly from the database and manually running the links therein. This usage is strongly discouraged in favour of a standard deployment though.

### 2.8 Database

ADSS Web RA Server requires its own database. It is not required to create the schema or configure any other feature prior to the installation.

Permissions are required to allow the creation of database tables, and entry, modification, and removal of data within those tables.



# **3** Installation Modules

ADSS Web RA consists of the following modules. Note the API is the only non-mandatory ones for a working solution:

#### ADSS Web RA Admin

Administration application that allows to manage the system wide configurations, service plans, user accounts and access controls, etc.

#### ADSS Web RA Desktop Web

ADSS Web RA Web is used for managing certificates i.e. creation, renewal and revocation.

#### ADSS Web RA API (Restful Web Services)

REST architecture API support that is used to integrate ADSS Web RA functionality within your own portal. The API uses JWT to implement authentication and authorization. There is a separate API Guide that provides full details of the REST architecture implementation.

#### • ADSS Web RA Device

ADSS Web RA Device is used to manage device enrolment for certificate creation, renewal and revocation.

#### • ADSS Web RA SSL Device

ADSS Web RA SSL Device is used to manage device enrolment over SSL for certificate creation, renewal and revocation e.g. EST Protocol

#### • Windows Enrolment

ADSS Web RA Windows Enrolment is used to manage certificate renewal or auto-enrolment on a Windows machine.



# 4 ADSS Web RA Installation

### 4.1 Fresh Installation of ADSS Web RA

Before starting the ADSS Web RA installation process, make sure the following:

Prerequisites must be installed on the ADSS Web RA machine. If these are not installed, ADSS Web RA will not open and even cannot display any page when accessed. An empty database is created on the DMBS (SQL Server) with privileges for ADSS Web RA.

The ADSS Web RA package MUST be unzipped on to a disk that has sufficient space – a minimum of **100GB** is recommended. This is because the product is installed and runs from where the installation package is extracted to. Hence, choose a suitable location and naming structure. If you extract the installer on Desktop, it will not work so choose a proper drive to extract it.



Do not include spaces in the installation folder name and path – use hyphen or underscore characters instead, if required. Spaces will cause functional problems with ADSS Web RA installation. The installer must be run from a user account with the Windows Administrator privileges.

ADSS Web RA installer generates all the required database tables and populates the default data required to run the system. Therefore, there is no requirement for separate SQL scripts or equivalent for non-SQL databases.

**4.1.1** Once the above conditions are satisfied, launch the installer by right-clicking the file **[WEBRA Installation-Dir]/setup/install** and select Run as administrator from the menu will present the welcome screen.

The following welcome screen is shown:

🔏 Web RA In:	taller						
Welcome t	o Web RA						
register users t RAS/SAM serv documents us	o offer them differen ices as well as push u ing these keys. Web F	key management and t sets of certification s sers to Web RA. All of A is ideal for the orga enting strong vetting	ervices. It can also re them are powerful a nizations that are loo	gister users to ADSS pplications to create oking to centrally co	CSP services, e certificates a	ADSS nd sign th	ne
Web RA consi	ts of the following m	odules:					
- Web RA Dev - Web RA Win	top Web RESTful Web Services ce dows Enrolment	i) low the installation ins	structions provided in	n <u>Web RA Installatic</u>	on Guide		
U.S. Patent N	o. 7,360,079						
					Next	Car	ncel

4.1.2 Click the 'Next' button to continue.

**4.1.3** System requirements screen will appear next to validate if all the required prerequisites are installed or not. If any of ADSS Web RA system dependencies are not found, or not functioning, then Failed status will be shown corresponding to that component on the screen.

You can only proceed with the installation process once all issues related to system dependencies are resolved as shown below:

- 🕹 Web RA Installer	_		×
Checking System Requirements			
Microsoft .NET Framework v4.8 or above ASP .Net Core v8.0.0 or above Microsoft Internet Information Services (IIS) v10.0 or above URL Rewrite in Internet Information Services (IIS)		Success Success Success Success	
ASP .Net Core Module in Internet Information Services (IIS) runtime support		Success	
	Next	Can	cel

**4.1.4** Click the **'Next'** button to select an installation type.

🔏 Web RA Installer		
Installation Type		
Install Web RA for the first time		
Include sample data		
O Install Web RA as another instance within a load-balanced configuration		
Install Web RA with an existing database		
O Upgrade an existing Web RA instance to the latest one		
O Change database credentials		
O Uninstall Web RA		
	Next	Can

If you are installing ADSS Web RA for the first time or you wish to deploy a fresh installation with a new database, then select "Install Web RA for the first time". The "Install Web RA as another instance within a load-balanced configuration" option will install the ADSS Web RA instance in a load-balanced mode. If you wish to upgrade an older system to the latest version, then select "Upgrade" an existing ADSS Web RA instance to the latest one". Installer supports the upgrade when the base (current) installation is v2.1.1 or higher.

The **Install Web RA with an existing database** option will install ADSS Web RA against an existing ADSS Web RA database. For example, this option can be used to recover a system from a database back-up. The **Change database credentials** option is used if the database password, user, database name and/or server is changed, and it needs to be updated in ADSS Web RA installation. Select the last option **Uninstall Web RA** if you wish to uninstall ADSS Web RA from the system.



#### 4.1.5 Select the option Install Web RA for the first time.

You can include sample data in application during fresh installation. Sample data includes following data:

- Default ADSS Connector
- Default SMTP Connector
- Default ADSS Service Profile
- Default Subscriber Agreement
- Default Vetting Form
- Default Service Plan
- Default Authentication Profile

If "Include Sample Data" is not selected then above data will not be added when application installed.

**4.1.6** Click the **Next** button to show the **License Agreement**.

License Agreement	
ASCERTIA SERVER SOFTWARE LICENSE AGREEMENT IMPORTANT - PLEASE READ CAREFULLY:	^
1.0 ACCEPTANCE. Ascertia Limited ("Ascertia") is willing to license this software (the Software) and documentation (together the Product) in this installation package to you as an individual or as an authorised representative of the company or legal entity that will be using the Software only on condition that you accept all of the terms of this license agreement. You or the company or legal entity (referred to as the License) can accept the terms of this license Agreement by clicking on the "I agree" button below, and proceed with the installation. To reject the terms of this License Agreement, click on the "I disagree" button below and exit the installation process and make no further use of the software.	
BY INSTALLING AND USING THIS ASCERTIA SOFTWARE, YOU AGREE FOR YOU OR YOUR ENTERPRISE TO BE BOUND BY THE TERMS OF THIS AGREEMENT. IF YOU DO NOT AGREE TO THE TERMS OF THIS AGREEMENT, DO NOT INSTALL OR USE THE ASCERTIA SOFTWARE.	
Licensee and Ascertia may hereinafter be referred to as individually, a "Party", or, together, the "Parties."	
2.0 LICENSE Evaluation Copy. If you acquired the license for the Software on an evaluation basis, you may use the Software without charge until the evaluation limits are reached or for a maximum of 3 months from the day that you install the Software. After this you must pay the appropriate license fee to continue to use the Software. To pay the license fine end evaluation and evaluation experiments an advected and evaluation of the Software.	~

**4.1.3.** Click the **I Agree** button to proceed.

**4.1.7** The **Readme screen** will be displayed with new features list. Click **Next** button to proceed. The following screen for **Database Configurations** will be displayed.

Web RA Database	Configurations		
– Database Managemer	t System Type		
Microsoft SQL	Server		
Installation Type			
Basic	Advanced		
Database Configuratio	ns		
Database Server:	Production-Server		
Port:	1433		
Database Name:	WebRA		
	Use windows authentication		
Username:	sa		
Password:	*****		

Furthermore, you can either choose to do a basic installation or use an advanced one. If this is a basic installation, then use the first option **Basic** and provide the appropriate ADSS Web RA database credentials. The information displayed above is an example and you should configure the relevant settings for your own environment.



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Once you enter the database credentials and select Next, the installer uses the information to test the connectivity to the database. If the installer can establish the connection with the database, then it will proceed with the installation.

#### The following table explains the **Database Configurations**.

Item	Description
Database Server / Host Name	Database server IP or DNS name.
Port	Database listening port. For SQL Server the default port is <b>1433.</b>
Database Name	Name of the database instance. Note this must exist prior to the installation.
Use Windows Authentication	If enabled, installer will use the Windows logged in user to communicate with database. You are required to enter password because it will be used in Application Pool to set the Identity against this user for all websites.
	By default, the current logged in user will be configured in the Application Pool Identity. If you wish to run ADSS Web RA under a different windows user, then you need to change it manually.
	If your requirement is to use SQL Server authentication, then type SQL Server Username and Password in the underneath fields without enabling this option.
Username	Name of the database user. Note this must exist prior to the installation. It is not required in the case of Windows Authentication.
Password	Password credential of the database user. Note this must exist prior to the installation. In case of Windows Authentication, type the password of domain user shown in the Username field to configure the Application Pool Identity in IIS Server for successful communication with SQL Server.

If you have chosen **Advanced** for database configurations, then the following screen will be shown.

Web RA Database Cor	figurations	
Database Management Sys	tem Type	
Microsoft SQL Server	er	
Installation Type		
⊖ Basic	Advanced	
Database Configurations		
Connection String:	data source= Production-Server,initial catalog= WebRA;user id=sa;password=password;MultipleActiveResultSets=True;Pooling=true	

The information displayed above is an example and you should configure the relevant settings for your own environment.

Once you complete the options and select **Next**, the installer uses the information provided to test the connectivity to the database. If the installer can establish the connection with the database, then it will proceed with the installation.

The following table entails details of the Advanced Installation type:

ltem	Description
ADSS Web RA Connection String	<ul> <li>The following are sample connection strings for SQL Server:</li> <li>Simple One - "data source= [Database Server Address];initial catalog= [Database Name];user id=[Database User Name];password=[Database User Password];MultipleActiveResultSets=True;Pooling=true"</li> </ul>
	<ul> <li>For Named instance - "data source= [Database Server Address]\[SQL Server Instance Name];initial catalog=[Database Name];user id=[Database User Name];password[Database User Password];MultipleActiveResultSets=True;Pooling=true"</li> </ul>
	<ul> <li>For Windows Authentication - "data source= [Database Server Address];initial catalog=[Database Name];integrated security=SSPI;MultipleActiveResultSets=True;Pooling=true</li> </ul>
Username	Field will only be shown in case of Windows Authentication while for SQL Server Authentication, username will be provided in the connection string.
Password	In case of Windows Authentication, type the password of domain user shown in the Username field to configure the Application Pool Identity in IIS Server for successful communication with SQL Server. In case of SQL Server authentication, password will be provided in the connection string.

If Windows authentication is enabled in connection string, installer will use the Windows logged in user to communicate with database upon clicking the **Next** button. You are required to enter password because it will be used in Application Pool to set the Identity against this user for all websites.

By default, the current logged in user will be configured in the Application Pool Identity. If you wish to run ADSS Web RA under a different Windows user, then you need to change it manually. As shown in the following Screen:

sections	Applicati	on Pools					
	Appliedd	0111 0015					
Start Page WEBRA-RC1 (ASCERTIA0\aasim.shehzad)	This page lets you view isolation among differe	and manage the list on nt applications.	of application pools on the ser	ver. Application pools a	re associated with worker processes, con	tain one or more applica	
Sites	Filter:	• 🐨 Go - 🖓	Show All Group by: No Gr	ouping •	Advanced Settings		? ×
> 😂 admin	Name	Status .N	IET CLR V Managed Pipel	Identity	✓ (General)		~
Default Web Site	2	Started v4	1.0 Integrated	ApplicationPoolld	.NET CLR Version	v4.0	
> e device	2	Started v4	1.0 Classic	ApplicationPoolld	Enable 32-Bit Applications	False	
> 💮 ssldevice		Started v4	1.0 Integrated	ApplicationPoolld	Managed Pipeline Mode	Integrated	
> 🚱 web	2	Started v4		ApplicationPoolId	Name	1000	
	0	Started v4		ApplicationPoolld	Queue Length Start Mode	OnDemand	
	2	Started v4		ApplicationPoolld	V CPU	UnDemand	
	2	Started v4		ApplicationPoolId	Limit (percent)	0	
	2	Started v4		ApplicationPoolld	Limit (percent)	NoAction	
	web 2	Started v4	1.0 Integrated	ApplicationPoolId	Limit Interval (minutes)	s	
		ication Pool			Processor Affinity Enabled	False	
	Set Appli	ation Pool Defaults			Processor Affinity Mask	4294967295	
	▶ Start				Processor Affinity Mask (64-bit of		
	Stop				Y Process Model		
	2 Recycle				> Generate Process Model Event L		
	Basic Set				Identity	ascertia0\webra.ga	4
	- Case	-			Idle Time-out (minutes)	20	
	Recycling				Idle Time-out Action	Terminate	~
		l Settings	3		Identity		
	Rename				[identityType, username, password]	Configures the applicati	on pool to run
	× Remove				as built-in account, i.e. Application	Pool Identity (recommer	ded), Network
	View App	lications			Service, Local System, Local Service,	or as a specific user ider	tity.
	P Help						
	W Help					OK	Cancel



4.1.8 Click the Next button to select specific modules:

the system
the system

**4.1.9** Select **Device Modules** to install the required features. The fully qualified domain name field will be auto-filled with complete computer name. For each selected application, provide the web application name and port. A typical in-house installation of ADSS Web RA should only include Admin, Desktop Web, and the API. However, the device will be added at the end. Click Next to proceed.

	o RA Device ITP (Install SCEP)		
	Website Name:	device	Port: 61
И	TTPS (Install SCEP, CMP, ACME, EST)		
1	Website Name (SCEP, CMP, ACME, E	ST): device	Port: 62
Cli	ient Authentication (Install EST)		
Ň	Website Name (EST):	ssldevice	Port: 63

Select Windows Enrolment. For each selected application, provide the web application name and port. Then click Next.

Vindows Enrolment		
Windows Integrated Authentication Certificate Enrolment Policy Service (CEP)	windowsIntegratedCepService	Port: 86
Certificate Enrolment Service (CES)	windowsIntegratedCesService	Port: 87
UserName / Password Authentication		
Certificate Enrolment Policy Service (CEP)	windowsUserNamePasswordCepService	Port: 88
Certificate Enrolment Service (CES)	windowsUserNamePasswordCesService	Port: 89
Client Authentication		
Certificate Enrolment Policy Service (CEP)	windowsSslCepService	Port: 90
Certificate Enrolment Service (CES)	windowsSslCesService	Port: 91

The information displayed above is an example, which you may change suiting to your environment and organisation preferences. However, the example shown is sufficient. The names will appear as websites under **IIS Manager**.

The following table entails details of the Windows Enrolment modules.

Item	Description
ADSS Web RA Admin	ADSS Web RA Admin is used by the administrators to manage the system wide configurations, service plans, user accounts and access control etc.
ADSS Web RA Web	ADSS Web RA Web is used to manage certificates for creation, renewal and revocation.
ADSS Web RA API	<b>REST API</b> is used to integrate ADSS Web RA functionality within your own portal.
ADSS Web RA Device	ADSS Web RA device is used to manage device enrolment for certificate creation, renewal and revocation. This site will be deployed with http and https bindings.
ADSS Web RA SSL Device	ADSS Web RA SSL device is used to manage device enrolment over SSL for certificate creation, renewal and revocation e.g. EST Protocol. This site will be deployed with https SSL.
Windows Enrolment	Windows Enrolment is used to manage certificate renewal or auto- enrolment on a windows machine.



4.1.10 Click the Next button to configure the SMTP Server and Email Settings.

Email Configuration	ons		
- SMTP Configurations			
SMTP Server:	mail.ascertia.com		
Port:	25		
	Use SSL/TLS authentication		
	Use username/password authentication		
Username:	smtp-user		
Password:	****		
From:	notifications@ascertia.com		
TION.	All email notifications will be sent from this address.		
Failure Email Configur	ations		
To:	support@ascertia.com		
	In case of errors/warnings emails will be sent at this addre	255,	
Subject:	Web RA Notification Test Email	l .	
	Subject for errors/warnings emails.		

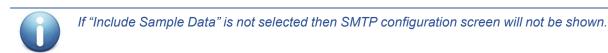
Configure SMTP Server and email settings for your environment. ADSS Web RA must have access to a suitable SMTP Server without which users will not be able to receive registration emails that are required to complete the user registration process.

Additionally, system generated email notifications will not be received either. Although the latter will not prevent functionality, but it is not a recommended approach. The information displayed above is an example and you should setup configurations for your own environment. The configuration items are explained in the following table:

Item	Description
SMTP Server	Defines the email server address. This email server is used to send email notifications to users as required, such as for account registration, data sharing etc. It is also used for sending notification emails to ADSS Web RA administrators.
Port	Define the service port for the SMTP mail server.
Use SSL/ TLS authentication	Select this option if the SMTP mail server requires SSL/TLS.
Username	Configure the SMTP mail server username that is used to send ADSS Web RA generated emails.
Password	Define the password to authenticate the SMTP server.
From	Configure the <b>From</b> email address that should be used to send notification emails to users and administrators.
То	Configure the email address where error notifications should be sent. This is usually the IT support team address.
Subject	Define a subject line for the notification emails that are sent to the administrator, e.g. ADSS Web RA Alert.

After configuring these SMTP settings, click the **Test Email** button to verify that SMTP configurations are valid.





4.1.11 Click the Next button to see the Installation Summary and complete the installation process.

		-		$\times$
÷	🐍 Web RA Installer			
	Web RA Installation Summary			
	The following modules will be installed: - Web RA Admin - Web RA Web - Web RA API (RESTful Web Services) - Web RA Device - Web RA SSL Device - Web RA Windows Enrolment Services			
	E	Next	Can	cel

This screen shows the installation summary by listing different product modules that will be installed.

If you think any listed item is incorrect then use the Back button (arrow towards the top-left of the dialogue box) to correct your choices before proceeding ahead.

Otherwise, click the **Next** button to continue with the installation.

Installation	Progress	
	5	
	abase script for Web RA on database: WebRA-Database	^
	ntity script for Web RA on database: WebRA-Database	
	ak Debian script for Web RA on database: WebRA-Database	
	ult configurations	
	ult connectors and Certification profiles	
	P configurations in database	
	iite for Web RA Admin: admin iite for Web RA Web: web	
	ite for Web RA API: api	
	ite for Web RA Device: device	
	PS binding for Web RA Device: device	
	ite for Web RA SSL Device: ssldevice	
	ows integrated CEP service site : windowsIntegratedCepService	
Creating wind	ows integrated windows CES service site : windowsIntegratedCesService	
	Name/Password windows CEP service site : windowsIntegratedCepService	
	Name/Password windows CES service site : windowsIntegratedCesService	
	vindows CEP service site : windowsIntegratedCepService	
	vindows CES service site : windowsSsICesService	
Updating syst		
Web RA instal	lation completed!	



4.1.12 Click Finish to complete the installation process.



#### 4.1.13 ADSS Web RA URLs

Service	URL Format	Example
ADSS Web RA Admin	https:// <machine-name>:PORT</machine-name>	https://localhost:443
ADSS Web RA Desktop Web	https:// <machine-name>:PORT</machine-name>	https://localhost:81
ADSS Web RA API	https:// <machine-name>:PORT</machine-name>	https://localhost:82
ADSS Web RA Device	https:// <machine-name>:PORT</machine-name>	http://localhost:83 https://localhost:84
ADSS Web RA SSL Device	https:// <machine-name>:PORT</machine-name>	https://localhost:85 https://localhost:86
ADSS Web RA Windows Integrated CEP Service	https:// <machine-name>:PORT</machine-name>	https://localhost:87
ADSS Web RA Windows Integrated CES Service	https:// <machine-name>:PORT</machine-name>	https://localhost:88
ADSS Web RA Windows SSL CEP Service	https:// <machine-name>:PORT</machine-name>	https://localhost:89
ADSS Web RA Windows SSL CES Service	https:// <machine-name>:PORT</machine-name>	https://localhost:90
ADSS Web RA Windows User Name Password CEP Service	https:// <machine-name>:PORT</machine-name>	https://localhost:91
ADSS Web RA Windows User Name Password CES Service	https:// <machine-name>:PORT</machine-name>	https://localhost:92

Use the following URLs to access the ADSS Web RA Server web sites:

Where necessary (i.e. browsing Admin website) your web browser will prompt you to select the appropriate certificate for authentication purposes. The installation process places the necessary certificates into the Windows Security Store, Internet Explorer, Edge, Chrome and related browsers that rely on the security store, can use them as such.

If you wish to use Firefox and similar web browsers that utilize their own respective security stores you will need to import adss-default-admin.pfx and WebRA-default-

admin.cer from [WebRAInstallationDirectory]/setup/certs directory.

There are two options to set secure binding against each ADSS Web RA site:

• Using standard IIS web server HTTP redirects. This means the basic installation is done with various ADSS Web RA sites, where each site has their respective default port/binding but no host name. You can then add new sites for each web site and bind this to the desired external public

facing host name and secure port, likely to be 443. Each site can be configured in such a fashion. Each default ADSS Web RA site can then be configured to permanently redirect to the secure version.

• Once the deployment of ADSS Web RA is completed, the bindings of each site can be changed to use a secure (443) port. The new binding will include the appropriate public facing host name.

Once the bindings of IIS web sites have been put in place, access the ADSS Web RA Administration console and make changes to the general configuration settings. This means changing the public and private URLs for the Desktop Web and API sites accordingly. Once it is complete, save the changes and publish them.



#### The second option is recommended.

*Note:* Microsoft Windows Server: TLS 1.3 is enabled by default for installations of Windows Server 2022, integrated applications should support this version of TLS. For application integrations that do not support this and need to be updated, customers can disable TLS 1.3 over TCP in the IIS Bindings



### 4.2 Installing ADSS Web RA with A Load-Balanced Configuration

Follow these instructions to install ADSS Web RA with a load-balanced configuration.

**4.2.1** Launch the installer by right-clicking on the file name [Web RA Installation Directory]/setup/install.bat and select Run as administrator.

Follow the installation wizard as described previously until the **Installation Type** screen is shown:

# **4.2.2** Select the option Install ADSS Web RA as another instance within a load-balanced configuration.

	-		×
Web RA Installer			
Installation Type			
O Install Web RA for the first time			
Install Web RA as another instance within a load-balanced configuration			
Install Web RA with an existing database			
O Upgrade an existing Web RA instance to the latest one			
Change database credentials			
O Uninstall Web RA			
	Next	Can	cel

4.2.3 Click the Next button to show the License Agreement.

License Agreemen	t		
ASCERTIA SERVER SOFT IMPORTANT - PLEASE F	WARE LICENSE AGREEMENT READ CAREFULLY:		^
Product) in this installat legal entity that will be agreement. You or the Agreement by clicking	tion package to you as an individual using the Software only on conditio company or legal entity (referred to on the "I agree" button below, and J , click on the "I disagree" button be	are (the Software) and documentation (together t l or as an authorised representative of the compar n that you accept all of the terms of this license as the Licensee) can accept the terms of this Lice proceed with the installation. To reject the terms low and exit the installation process and make no	ny or nse of
BOUND BY THE TERMS		DU AGREE FOR YOU OR YOUR ENTERPRISE TO BE NOT AGREE TO THE TERMS OF THIS AGREEMENT	
Licensee and Ascertia n	nay hereinafter be referred to as indi	vidually, a "Party", or, together, the "Parties."	
without charge until th	e evaluation limits are reached or fo	re on an evaluation basis, you may use the Softwi r a maximum of 3 months from the day that you e license fee to continue to use the Software. To	



4.2.4 Click the I Agree button to continue.

- 4.2.5 The Readme screen will be displayed with new features list. Click Next to proceed.
- **4.2.6** The following screen for **Database Configurations** will be displayed. Enter the required fields and click **Next**.

Web RA Database	conigurations	
- Database Managemen	t System Type	
Microsoft SQL	Server	
Installation Type		
Basic	Advanced	
Database Configuratio	ns	
Database Server:	Production-Server	
Port:	1433	
Database Name:	WebRA	
	Use windows authentication	
Username:	sa	
Password:	••••••	

The information displayed above is an example and you should configure the relevant settings for your own environment.



The ADSS Web RA database schema and the version required by the installer must be the same.

If the current ADSS Web RA database schema is older than the version required by the installer, and you click **Next**, the installer will prompt you that ADSS Web RA database schema will be upgraded to the latest version. Click **OK** to authorise the schema update.

Furthermore, you can either choose to do a basic installation or use an advanced one. If this is a basic installation, then use the first option **Basic** and provide the appropriate ADSS Web RA database credentials. The information displayed above is an example and you should configure the relevant settings for your own environment.



Once you have entered the database credentials and select Next, the installer uses the information to test the connectivity to the database. If the installer can establish the connection with the database, then it will proceed with the installation.



The following table explains the **Database Configurations** screen.

Item	Description
Database Server / Host Name	Database server IP or DNS name.
Port	Database listening port. For SQL Server the default port is <b>1433</b> .
Database Name	Name of the database instance. Note this must exist prior to the installation.
Use Windows Authentication	If enabled, installer will use the Windows logged in user to communicate with database. You are required to enter password because it will be used in Application Pool to set the Identity against this user for all websites.
	By default, the current logged in user will be configured in the Application Pool Identity. If you wish to run ADSS Web RA under a different windows user, then you need to change it manually.
	If your requirement is to use SQL Server authentication, then type SQL Server Username and Password in the underneath fields without enabling this option.
Username	Name of the database user. Note this must exist prior to the installation. It is not required in the case of Windows Authentication.
Password	Password credential of the database user. Note this must exist prior to the installation. In case of Windows Authentication, type the password of domain user shown in the Username field to configure the Application Pool Identity in IIS Server for successful communication with SQL Server.

If this is not a basic installation and you choose the second option to "**Advanced**" then the following screen is shown:

🔶 🔏 Web RA Installer	-		×
Web RA Database Confi	gurations		
Database Management System	Туре		1
<ul> <li>Microsoft SQL Server</li> </ul>			
Installation Type			7
O Basic	Advanced		
Database Configurations			1
Connection String:	data source= Production-Server;initial catalog= WebRA;user id=sa;password=password;MultipleActiveResultSets=True;Pooling=true		
	Next	Ca	ancel

The information displayed above is an example and you should configure the relevant settings for your own environment.



Once you complete the options and select **Next**, the installer uses the information provided to test the connectivity to the database. If the installer can establish the connection with the database, then it will proceed with the installation.

The following table entails details of the configuration options:

ltem	Description
ADSS Web RA Connection String	<ul> <li>The following are sample connection strings for SQL Server:</li> <li>Simple One - "data source= [Database Server Address];initial catalog= [Database Name];user id=[Database User Name];password=[Database User Password];MultipleActiveResultSets=True;Pooling=true"</li> </ul>
	<ul> <li>For Named instance - "data source= [Database Server Address]\[SQL Server Instance Name];initial catalog=[Database Name];user id=[Database User Name];password[Database User Password];MultipleActiveResultSets=True;Pooling=true"</li> </ul>
	<ul> <li>For Windows Authentication - "data source= [Database Server Address];initial catalog=[Database Name];integrated security=SSPI;MultipleActiveResultSets=True;Pooling=true</li> </ul>
Username	Field will only be shown in case of Windows Authentication while for SQL Server Authentication, username will be provided in the connection string.
Password	In case of Windows Authentication, type the password of domain user shown in the Username field to configure the Application Pool Identity in IIS Server for successful communication with SQL Server. In case of SQL Server authentication, password will be provided in the connection string.

#### 4.2.7 Click the Next button to select Web RA Modules.

	-		×
← 🔏 Web RA Installer			
Web RA Modules			
Fully Qualified Domain Name: webra.ascertia.com.pk			
<ul> <li>Fully qualified domain name will be set for the all instances in system settings. It will not update setting for existing instances.</li> </ul>	the syster	n	
Web RA Admin			
Website Name: admin Port: 443			
Web RA Web			
Website Name: web Port: 81			
Web RA API (RESTful Web Services)			
Website Name: api Port: 82			
	Next	Car	ncel



**4.2.8** Select the appropriate modules to install the required features. For each selected application, provide the web application name and port and click **Next**. A typical in-house installation of ADSS Web RA should only include Admin, Desktop Web, and the API and lastly, the device will be added.

<ul> <li>← ♣ Web RA Installer</li> <li>Web RA Device Modules</li> </ul>				_		×
Web RA Device HTTP (Install SCEP)						
Website Name:	device	Port:	84			
HTTPS (Install CMP, ACME, EST) Website Name (CMP, ACME, EST):	device	Port:	85			
Client Authentication (Install EST) Website Name (EST):	ssldevice	Port:	86			
			Ne	ext	Cano	el

**4.2.9** Select **Windows Enrolment**. For each selected application, provide the web application name and port. Then click **Next**.

vv	/indows Enrolment Modules				
	☑ Windows Enrolment				
	Windows Integrated Authentication				
	Certificate Enrolment Policy Service (CEP)	windowsIntegratedCepService	Port:	87	
	Certificat Enrolement Service (CES)	windowsIntegratedCesService	Port:	88	]
	UserName / Password Authentication				
	Certificate Enrolment Policy Service (CEP)	windowsUserNamePasswordCepService	Port:	89	]
	Certificat Enrolement Service (CES)	windowsUserNamePasswordCesService	Port:	90	]
	Client Authentication				
	Certificate Enrolment Policy Service (CEP)	windowsSsICepService	Port:	91	 1
	Certificat Enrolement Service (CES)	windowsSsICesService	Port:	92	]

The information displayed above is an example, which you may change to suit your environment and organisation preferences. However, the example shown is sufficient. The names will appear as websites under IIS Manager.



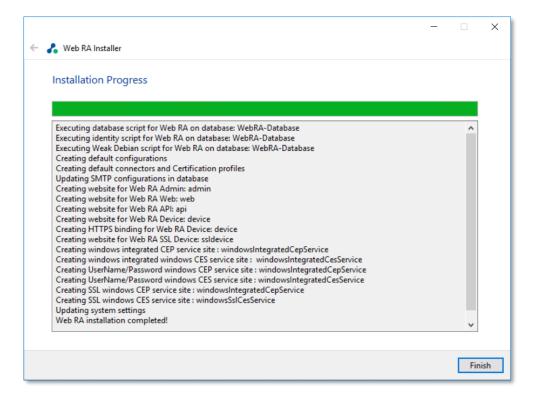
The following table explains the **Windows Enrolment** section.

Item	Description	
ADSS Web RA Admin	ADSS Web RA Admin is used by the administrators to manage the system wide configurations, service plans, user accounts and access control etc.	
ADSS Web RA Web	ADSS Web RA Web is used to manage certificates for creation, renewal and revocation.	
ADSS Web RA API	<b>SS Web RA API</b> REST API is used to integrate ADSS Web RA functionality within yo own portal.	
ADSS Web RA Device	ADSS Web RA device is used to manage device enrolment for certificate creation, renewal and revocation. This site will be deployed with http and https bindings.	
ADSS Web RA SSL Device	ADSS Web RA SSL device is used to manage device enrolment over SSL for certificate creation, renewal and revocation e.g. EST Protocol. This site will be deployed with https SSL.	
Windows Enrolment	Windows Enrolment is used to manage certificate renewal or auto- enrolment on a windows machine.	

4.2.10 Click the Next button to show the Installation Summary and complete the installation.

	_		$\times$
← 🔥 Web RA Installer			
Web DA Installation Commence			
Web RA Installation Summary			
The following modules will be installed:			
- Web RA Admin - Web RA Web			
- Web RA API (RESTful Web Services)			
- Web RA Device - Web RA SSL Device			
- Web RA Windows Enrolment Services			
	Next	Car	ncel

This screen shows the installation summary by listing the different product modules that will be installed. If you think any listed item is incorrect then use the **Back** button (arrow towards the top-left of the dialogue box) to correct your choices before proceeding.



4.2.11 Click Finish to complete the installation process.

#### 4.2.12 ADSS Web RA URLs

Use the following URLs to access the ADSS Web RA Server Web sites:

Service	URL Format	Example
ADSS Web RA Admin	https:// <machine-name>:PORT</machine-name>	https://localhost:443
ADSS Web RA Desktop Web	https:// <machine-name>:PORT</machine-name>	https://localhost:81
ADSS Web RA API	https:// <machine-name>:PORT</machine-name>	https://localhost:82
ADSS Web RA Device	https:// <machine-name>:PORT</machine-name>	http://localhost:83 https://localhost:84
ADSS Web RA SSL Device	https:// <machine-name>:PORT</machine-name>	https://localhost:85 https://localhost:86
ADSS Web RA Windows Integrated CEP Service	https:// <machine-name>:PORT</machine-name>	https://localhost:87
ADSS Web RA Windows Integrated CES Service	https:// <machine-name>:PORT</machine-name>	https://localhost:88
ADSS Web RA Windows SSL CEP Service	https:// <machine-name>:PORT</machine-name>	https://localhost:89





ADSS Web RA Windows SSL CES Service	https:// <machine-name>:PORT</machine-name>	https://localhost:90
ADSS Web RA Windows User Name Password CEP Service	https:// <machine-name>:PORT</machine-name>	https://localhost:91
ADSS Web RA Windows User Name Password CES Service	https:// <machine-name>:PORT</machine-name>	https://localhost:92



### 4.3 Installing ADSS Web RA with an Existing Database

In order to install the ADSS Web RA with an existing database, follow the below mentioned installation instructions:

4.3.1 Launch the installer by right-clicking on the file name [ADSS Web RA Installation Directory]/setup/install.bat and select Run as administrator. Follow the installation wizard as described previously until the Installation Type screen is shown:

#### 4.3.2 Select the option Install ADSS Web RA within an existing database.

← 🚴 Web RA Installer	_		×
Installation Type			
<ul> <li>Install Web RA for the first time</li> <li>Install Web RA as another instance within a load-balanced configuration</li> <li>Install Web RA with an existing database</li> <li>Upgrade an existing Web RA instance to the latest one</li> </ul>			
<ul> <li>Change database credentials</li> <li>Uninstall Web RA</li> </ul>			
C	Next	Can	cel

4.3.3 Click the **Next** button to show the **License Agreement**.

icense Agreement	
ASCERTIA SERVER SOFTWARE LICENSE AGREEMENT IMPORTANT - PLEASE READ CAREFULLY:	^
1.0 ACCEPTANCE. Ascertia Limited ("Ascertia") is willing to license this software (the Software) and documentation (togethe Product) in this installation package to you as an individual or as an authorised representative of the comp legal entity that will be using the Software only on condition that you accept all of the terms of this license, agreement. You or the company or legal entity (referred to as the License) can accept the terms of this License Agreement by clicking on the "I agree" button below, and proceed with the installation. To reject the term this License Agreement, click on the "I disagree" button below and exit the installation process and make r further use of the software.	pany or e cense ns of
BY INSTALLING AND USING THIS ASCERTIA SOFTWARE, YOU AGREE FOR YOU OR YOUR ENTERPRISE TO I BOUND BY THE TERMS OF THIS AGREEMENT. IF YOU DO NOT AGREE TO THE TERMS OF THIS AGREEMEN NOT INSTALL OR USE THE ASCERTIA SOFTWARE.	
Licensee and Ascertia may hereinafter be referred to as individually, a "Party", or, together, the "Parties."	
2.0 LICENSE Evaluation Copy. If you acquired the license for the Software on an evaluation basis, you may use the Soft without charge until the evaluation limits are reached or for a maximum of 3 months from the day that yo install the Software. After this you must pay the appropriate license fee to continue to use the Software. I	bu

**4.3.4** Click the **I** Agree button to continue.

**4.3.5** The **Readme screen** will be displayed with new features list. Click **Next** to proceed. The following screen for **Database Configurations** will be displayed:

- Database Managemen	t System Type		
Microsoft SQL			
Installation Type			
Basic	○ Advanced		
Database Configuratio	ns		
Database Server:	Production-Server		
Port:	1433		
Database Name:	WebRA		
	Use windows authentication		
Username:	sa		
Password:	********	7	
		-	

The information displayed above is an example and you should configure the relevant settings for your own environment.



The ADSS Web RA database schema and the version required by the installer must be the same.

If the current ADSS Web RA database schema is older than the version required by the installer, and you click **Next**, the installer will prompt you that ADSS Web RA database schema will be upgraded to the latest version. Click **OK** to authorise the schema update.

Furthermore, you can either choose to do a basic installation or use an advanced one. If this is a basic installation, then use the first option **Basic** and provide the appropriate ADSS Web RA database credentials. The information displayed above is an example and you should configure the relevant settings for your own environment.



Once you have entered the database credentials and select Next, the installer uses the information to test the connectivity to the database. If the installer can establish the connection with the database, then it will proceed with the installation.



The following table explains the **Database Configurations**.

Item	Description
Database Server / Host Name	Database server IP or DNS name.
Port	Database listening port. For SQL Server the default port is <b>1433.</b>
Database Name	Name of the database instance. Note this must exist prior to the installation.
Use Windows Authentication	If enabled, installer will use the Windows logged in user to communicate with database. You are required to enter password because it will be used in Application Pool to set the Identity against this user for all websites.
	By default, the current logged in user will be configured in the Application Pool Identity. If you wish to run ADSS Web RA under a different windows user, then you need to change it manually.
	If your requirement is to use SQL Server authentication, then type SQL Server Username and Password in the underneath fields without enabling this option.
Username	Name of the database user. Note this must exist prior to the installation. It is not required in the case of Windows Authentication.
Password	Password credential of the database user. Note this must exist prior to the installation. In case of Windows Authentication, type the password of domain user shown in the Username field to configure the Application Pool Identity in IIS Server for successful communication with SQL Server.

If this is not a basic installation and you choose the second option to "**Advanced**" then the following screen is shown.

← 🔏 Web RA Installer	- 0	×
Web RA Database Con	figurations	
– Database Management Syst	em Type	
Microsoft SQL Serve	r	
Installation Type		-
O Basic	Advanced	
Database Configurations		-
Connection String:	data source= Production-Server;initial catalog= WebRA;user id=sa;password=password;MultipleActiveResultSets=True;Pooling=true	
	Next C	ancel

The information displayed above is an example and you should configure the relevant settings for your own environment.

Once you complete the options and select **Next**, the installer uses the information provided to test the connectivity to the database. If the installer can establish the connection with the database, then it will proceed with the installation.

The following table explains the Advanced Database Configurations.

ltem	Description
ADSS Web RA Connection String	<ul> <li>The following are sample connection strings for SQL Server:</li> <li>Simple One - "data source= [Database Server Address];initial catalog= [Database Name];user id=[Database User Name];password=[Database User Password];MultipleActiveResultSets=True;Pooling=true"</li> </ul>
	<ul> <li>For Named instance - "data source= [Database Server Address]\[SQL Server Instance Name];initial catalog=[Database Name];user id=[Database User Name];password[Database User Password];MultipleActiveResultSets=True;Pooling=true"</li> </ul>
	<ul> <li>For Windows Authentication - "data source= [Database Server Address];initial catalog=[Database Name];integrated security=SSPI;MultipleActiveResultSets=True;Pooling=true</li> </ul>
Username	Field will only be shown in case of Windows Authentication while for SQL Server Authentication, username will be provided in the connection string.
Password	In case of Windows Authentication, type the password of domain user shown in the Username field to configure the Application Pool Identity in IIS Server for successful communication with SQL Server. In case of SQL Server authentication, password will be provided in the connection string.

### 4.3.6 Click the Next button to select Web RA Modules.

Web RA Modules						
Fully Qualified Dom	ain Name:	webra.ascertia.com.pk				
Fully qualified do setting for existing		be set for the all instances in system	n settings	. It will not upda	te the system	n
🗹 Web RA Admin						
	Website Name:	admin	Port:	443		
Web RA Web						
	Website Name:	web	Port:	81		
Web RA API (RES	Tful Web Service	s)				
	Website Name:	api	Port:	82		

**4.3.7** Select **modules** to install the required features. For each selected application, provide the web application name and port. A typical in-house installation of ADSS Web RA should only include Admin, Desktop Web, and the API. However, the device will be added at the end. Click **Next** to proceed.

Web RA Device		
✓ HTTP (Install SCEP) Website Name:	device	Port: 84
HTTPS (Install CMP, ACME, EST)		
Website Name (CMP, ACM)	E, EST): device	Port: 85
Client Authentication (Install EST)		
Website Name (EST):	ssldevice	Port: 86

**4.3.8** Select **Windows Enrolment**. For each selected application, provide the web application name and port. Then click **Next**.

indows Enrolment Modules				
Windows Enrolment				
Windows Integrated Authentication				
Certificate Enrolment Policy Service (CEP)	windowsIntegratedCepService	Port:	87	
Certificat Enrolement Service (CES)	windowsIntegratedCesService	Port:	88	
UserName / Password Authentication				
Certificate Enrolment Policy Service (CEP)	windowsUserNamePasswordCepService	Port:	89	
Certificat Enrolement Service (CES)	windowsUserNamePasswordCesService	Port:	90	
Client Authentication				
Certificate Enrolment Policy Service (CEP)	windowsSslCepService	Port:	91	
Certificat Enrolement Service (CES)	windowsSslCesService	Port:	92	

The information displayed above is an example, which you may change to suit your environment and organisation preferences. The names will appear as websites under IIS.

The following table explains the **Windows Enrolment Modules**.

Item	Description
ADSS Web RA Admin	ADSS Web RA Admin is used by the administrators to manage the system wide configurations, service plans, user accounts and access control etc.
ADSS Web RA Web	ADSS Web RA Web is used to manage certificates for creation, renewal and revocation.
ADSS Web RA API	<b>REST API</b> is used to integrate ADSS Web RA functionality within your own portal.
ADSS Web RA Device	ADSS Web RA device is used to manage device enrolment for certificate creation, renewal and revocation. This site will be deployed with http and https bindings.
ADSS Web RA SSL Device	ADSS Web RA SSL device is used to manage device enrolment over SSL for certificate creation, renewal and revocation e.g. EST Protocol. This site will be deployed with https SSL.
Windows Enrolment	Windows Enrolment is used to manage certificate renewal or auto- enrolment on a windows machine.

**4.3.9** Click the **Next** button to see the summary and complete the installation.

		_		$\times$
← ,	🐍 Web RA Installer			
	Web RA Installation Summary			
	The following modules will be installed: - Web RA Admin			
	- Web RA Web - Web RA API (RESTful Web Services)			
	- Web RA Device - Web RA SSL Device - Web RA Windows Enrolment Services			
		Next	Can	cel

This screen shows the installation summary by listing the different product modules that will be installed.

If you think any listed item is incorrect then use the **Back** button (arrow towards the top-left of the dialogue box) to correct your choices before proceeding ahead.



**4.3.10** Click the **Next** button to continue with the installation.

Installation Progress	
Executing database script for Web RA on database: WebRA-Database	^
Executing identity script for Web RA on database: WebRA-Database	
Executing Weak Debian script for Web RA on database: WebRA-Database	
Creating default configurations Creating default connectors and Certification profiles	
Updating SMTP configurations in database	
Creating website for Web RA Admin: admin	
Creating website for Web RA Web: web	
Creating website for Web RA API: api	
Creating website for Web RA Device: device	
Creating HTTPS binding for Web RA Device: device	
Creating website for We Device: ssldevice	
Creating windows integrated CEP service site : windowsIntegratedCepService	
Creating windows integrated windows CES service site : windowsIntegratedCesService	
Creating UserName/Password windows CEP service site : windowsIntegratedCepService	
Creating UserName/Password windows CES service site : windowsIntegratedCesService	
Creating SSL windows CEP service site : windowsIntegratedCepService	
Creating SSL windows CES service site : windowsSslCesService	
Updating system settings Web RA installation completed!	
web KA Installation completed:	~

Click the **Finish** button to complete the installation process.

### 4.3.11 ADSS Web RA URLs

See these URLs to access the ADSS Web RA web sites:

Service	URL Format	Example
ADSS Web RA Admin	https:// <machine-name>:PORT</machine-name>	https://localhost:443
ADSS Web RA Desktop Web	https:// <machine-name>:PORT</machine-name>	https://localhost:81
ADSS Web RA API	https:// <machine-name>:PORT</machine-name>	https://localhost:82
ADSS Web RA Device	https:// <machine-name>:PORT</machine-name>	http://localhost:83 https://localhost:84
ADSS Web RA SSL Device	https:// <machine-name>:PORT</machine-name>	https://localhost:85 https://localhost:86
ADSS Web RA Windows Integrated CEP Service	https:// <machine-name>:PORT</machine-name>	https://localhost:87
ADSS Web RA Windows Integrated CES Service	https:// <machine-name>:PORT</machine-name>	https://localhost:88
ADSS Web RA Windows SSL CEP Service	https:// <machine-name>:PORT</machine-name>	https://localhost:89
ADSS Web RA Windows SSL CES Service	https:// <machine-name>:PORT</machine-name>	https://localhost:90



ADSS Web RA Windows User Name Password CEP Service	https:// <machine-name>:PORT</machine-name>	https://localhost:91
ADSS Web RA Windows User Name Password CES Service	https:// <machine-name>:PORT</machine-name>	https://localhost:92



# 4.4 Upgrading ADSS Web RA

The upgrade process for ADSS Web RA is quick and easy. The existing data files, database schema and database entries are automatically upgraded during the process.

Follow these instructions to upgrade an older version of ADSS Web RA to the latest version.

**4.4.1.** Launch the installer by right-clicking on the file name **[ADSS Web RA Installation Directory]/setup/install.bat** and select **Run as administrator**.

Follow the installation wizard as described previously until the Installation Type screen is shown:

### 4.4.2. Select the option Upgrade an existing ADSS Web RA instance to the latest one

	-		$\times$
🔶 🔏 Web RA Installer			
Installation Type			
O Install Web RA for the first time			
Install Web RA as another instance within a load-balanced configuration			
Install Web RA with an existing database			
Upgrade an existing Web RA instance to the latest one			
Change database credentials			
O Uninstall Web RA			
I	Next	Can	cel

4.4.3. Click the Next button to view and accept the License Agreement.

icense Agreement	
ASCERTIA SERVER SOFTWARE LICENSE AGREEMENT IMPORTANT - PLEASE READ CAREFULLY:	^
INFORTANT - PLEASE READ CAREFOLLT:	
1.0 ACCEPTANCE.	
Ascertia Limited ("Ascertia") is willing to license this software (the Software) and documentation (toge Product) in this installation package to you as an individual or as an authorised representative of the co legal entity that will be using the Software only on condition that you accept all of the terms of this lice agreement. You or the company or legal entity (referred to as the Licensee) can accept the terms of this Agreement by clicking on the "I agree" button below, and proceed with the installation. To reject the this License Agreement, click on the "I disagree" button below and exit the installation process and ma further use of the software.	ompany or ense s License erms of
BY INSTALLING AND USING THIS ASCERTIA SOFTWARE, YOU AGREE FOR YOU OR YOUR ENTERPRISE T BOUND BY THE TERMS OF THIS AGREEMENT. IF YOU DO NOT AGREE TO THE TERMS OF THIS AGREEN NOT INSTALL OR USE THE ASCERTIA SOFTWARE.	
Licensee and Ascertia may hereinafter be referred to as individually, a "Party", or, together, the "Parties	."
2.0 LICENSE	
Evaluation Copy. If you acquired the license for the Software on an evaluation basis, you may use the s without charge until the evaluation limits are reached or for a maximum of 3 months from the day that install the Software. After this you must pay the appropriate license fee to continue to use the Software	t you



### 4.4.4. Click the I Agree button to proceed

**4.4.5.** The next appearing screen will be for ReadMe text. This includes all features of current version. Click **Next** to proceed.

Existing Web RA Configuration	ins			
Browse the existing Web RA installation	on directory:			
C:\WebRA-Deployment\WebRA_AGO	CE\WebRA-v2.8-Win64	-12Jun2023	Browse	
Before continuing - ensure that you h	we taken a backun of	the ADSS Web RA		

4.4.6. Click Browse and define the path to the existing ADSS Web RA installation directory.

4.4.7. Click the Next button to select Web RA Modules.

		-		×
← 🔏 Web RA Installer				
Web RA Modules				
Web RA Admin Website Name: admin Port: 444				
Web RA Web Website Name: web Port: 81				
Web RA API (RESTful Web Services) Website Name: api Port: 83				
	[	Next	Ca	ancel



**4.4.1.** Select **Device Modules** to install the required features. For each selected application, provide the web application name and port. A typical in-house installation of ADSS Web RA should only include Admin, Desktop Web, and the API. However, the device will be added at the end. Click **Next** to proceed.

Web RA Device						
HTTP (Install SC	EP) e Name:	device	Р	ort:	34	
HTTPS (Install C	MP, ACME, EST)	device	р	ort:	35	
Client Authentic	ation (Install EST)					
Website	Name (EST):	ssldevice	P	ort:	36	

**4.4.2.** Select **Windows Enrolment**. For each selected application, provide the web application name and port. Then click **Next**.

indows Enrolment Modules				
☑ Windows Enrolment				
Windows Integrated Authentication				
Certificate Enrolment Policy Service (CEP)	windowsIntegratedCepService	Port:	87	
Certificat Enrolement Service (CES)	windowsIntegratedCesService	Port:	88	
UserName / Password Authentication				
Certificate Enrolment Policy Service (CEP)	windowsUserNamePasswordCepService	Port:	89	
Certificat Enrolement Service (CES)	windowsUserNamePasswordCesService	Port:	90	
Client Authentication				
Certificate Enrolment Policy Service (CEP)	windowsSsICepService	Port:	91	
Certificat Enrolement Service (CES)	windowsSslCesService	Port:	92	

This screen shows a list of all ADSS **Web RA modules**. Components that are already installed are displayed but **greyed** out, while any ADSS Web RA module(s) that have not been installed previously can be selected for installation during the upgrade.



4.4.3. Click the Next button to see the Upgrade Summary.

Web RA Upgrade Summary		
Existing Installation		
Installation Path: C:\Installer\WebRA-v2.1-Win64-31Mar2020		
Web RA Version: 2000		
Web RA Database Version: 2000		
Machine Name / Port: 192.168.2.64 / 1433		
Database Name: WEBRA		
New Installation		
Installation Path: C:\Installer\WebRA-v2.1-Win64-31Mar2020		
Web RA Version: 2100		
Web RA Database Version: 2100		
Machine Name / Port: 192.168.2.64 / 1433		
Database Name: WEBRA		

**4.4.4.** Click the **Next** button to start the upgrade progress.

🐍 Web RA Installer	
Upgrade Progress	
Changing website paths to the new Web RA directory Updating system settings Web RA upgrade completed!	^
	~
	Finish

**4.4.5.** Click the **Finish** button to complete the ADSS Web RA upgrade process.

It is recommended to restart IIS after upgrade installation of ADSS Web RA.



# 4.5 Upgrade Web RA by adding modules

The Web RA installer allows you to add modules to your deployment at a later time if they were not installed initially. For example, if a user installs the Web RA application with the Admin, Web, and API modules but skips the Device Enrolments or Windows Enrolments modules, he can upgrade the existing deployment by adding these skipped modules when needed.

For example base version is v2.9 then follow the below steps:

**4.5.1.** Launch the installer by right-clicking on the file name [ADSS Web RA Installation Directory]/setup/install.bat and select Run as administrator.

Follow the installation wizard as described previously until the **Installation Type** screen is shown:

4.5.2. Select the option Upgrade an existing ADSS Web RA instance to the latest one

	-		×
← 🔏 Web RA Installer			
Installation Type			
in balladon (jpc			
Install Web RA for the first time			
Install Web RA as another instance within a load-balanced configuration			
Install Web RA with an existing database			
Upgrade an existing Web RA instance to the latest one			
○ Change database credentials			
O Uninstall Web RA			
	Next	Car	icel

**4.5.3.** Click the **Next** button to view and accept the **License Agreement**.



icense Agreement	
ASCERTIA SERVER SOFTWARE LICENSE AGREEMENT	^
IMPORTANT - PLEASE READ CAREFULLY:	
1.0 ACCEPTANCE.	
Ascertia Limited ("Ascertia") is willing to license this software (the Software) and documentation (toget	her the
Product) in this installation package to you as an individual or as an authorised representative of the con	
legal entity that will be using the Software only on condition that you accept all of the terms of this licer agreement. You or the company or legal entity (referred to as the Licensee) can accept the terms of this	
Agreement by clicking on the "I agree" button below, and proceed with the installation. To reject the te	
this License Agreement, click on the "I disagree" button below and exit the installation process and mak	
further use of the software.	
BY INSTALLING AND USING THIS ASCERTIA SOFTWARE, YOU AGREE FOR YOU OR YOUR ENTERPRISE TO	O BE
BOUND BY THE TERMS OF THIS AGREEMENT. IF YOU DO NOT AGREE TO THE TERMS OF THIS AGREEM	
NOT INSTALL OR USE THE ASCERTIA SOFTWARE.	
Licensee and Ascertia may hereinafter be referred to as individually, a "Party", or, together, the "Parties."	
2.0 LICENSE	
Evaluation Copy. If you acquired the license for the Software on an evaluation basis, you may use the Software on an evaluation basis, you way use the Software on an evaluation basis,	
without charge until the evaluation limits are reached or for a maximum of 3 months from the day that	
install the Software. After this you must pay the appropriate license fee to continue to use the Software.	. To pay

### 4.5.4. Click the I Agree button to proceed

**4.5.5.** The next appearing screen will be for Readme text. This includes all features of current version. Click **Next** to proceed.

data security section in Web RA admin portal before	`
upgrade.	
ise of ADSS Web RA Server adds support for operators to to locate digital certificates that can then be manually or	ļ
assign newly discovered certificates to Web RA users to y events, or to enable certificate owners to configure Web techanism such as SCEP, ACME, EST etc.	
ertificates that have been assigned to them via the Web RA	
shboard and can perform sorting, modifications, advanced	
	ise of ADSS Web RA Server adds support for operators to to locate digital certificates that can then be manually or assign newly discovered certificates to Web RA users to y events, or to enable certificate owners to configure Web techanism such as SCEP, ACME, EST etc.

4.5.6. Click Browse and define the path to the existing ADSS Web RA installation base directory.

	-		×
← 🔏 Web RA Installer			
Existing Web RA Configurations			
Browse the existing Web RA installation directory:			
C:\WebRA-Deployment\Aasim\2.9\WebRA-v2.9-Win64-26Dec2023	Brows	e	
Before continuing - ensure that you have taken backup of the Web RA database			
before continuing - ensure that you have taken backup of the web for database			
	Next	Can	icel

**4.5.7.** Click the **Next** button to select **Web RA Modules**. The already installed modules will be look like disabled fields e.g. Admin, Web and API modules are already installed.

eb RA Modules					
Fully Qualified Domain Name:	WebRA-RC1.ascertia.	com.pk			
Fully qualified domain name will setting for existing instances.	be set for the all instan	ces in system settings	. It will not u	pdate the syste	em
Web RA Admin					
Website Name:	admin	Port:	443		
Web RA Web					
Website Name:	web	Port:	81		
🖉 Web RA API (RESTful Web Service	es)				
Website Name:	api	Port:	82		

**4.5.8.** Click **Next** and Select **Device Modules** to install the required features if not installed already. For each selected application, provide the web application name and port. The modules which are not previously installed will look like editable fields. Click **Next** to proceed.



				_		×
<ul> <li>Keb RA Installer</li> </ul>						
Web RA Device Modules						
Web RA Device						
HTTP (Install SCEP)						
Website Name:	device	Port:	84		]	
HTTPS (Install CMP, ACME, EST)						
Website Name (CMP, ACME, EST)	device	Port:	85		]	
Client Authentication (Install EST)						
Website Name (EST):	ssldevice	Port:	86		]	
				Next	Ca	ncel

**4.5.9.** Select **Windows Enrolment** if not already installed. For each selected application, provide the web application name and port. Then click **Next**.

indows Enrolment Modules				
☑ Windows Enrolment				
Windows Integrated Authentication				
Certificate Enrolment Policy Service (CEP	windowsIntegratedCepService	Port:	87	
Certificat Enrolement Service (CES)	windowsIntegratedCesService	Port:	88	
UserName / Password Authentication				
Certificate Enrolment Policy Service (CEP	windowsUserNamePasswordCepService	Port:	89	
Certificat Enrolement Service (CES)	windowsUserNamePasswordCesService	Port:	90	
Client Authentication				
Certificate Enrolment Policy Service (CEP	windowsSsICepService	Port:	91	
Certificat Enrolement Service (CES)	windowsSsICesService	Port:	92	

This screen shows a list of all ADSS **Web RA modules**. Components that are already installed are displayed but **greyed** out, while any ADSS Web RA module(s) that have not been installed previously can be selected for installation during the upgrade.



4.5.10. Click the Next button to see the Upgrade Summary.

	_		$\times$
🗧 者 Web RA Installer			
Web RA Upgrade Summary			
Existing Installation			
Installation Path: C:\WebRA-Deployment\Aasim\2.9\WebRA-v2.9-Win64-26Dec2023			
Web RA Version: 292			
Web RA Database Version: 292			
Machine Name / Port: 192.168.2.64 / 1433			
Database Name: Web RA			
New Installation			
Installation Path: C:\WebRA-Deployment\Aasim\2.9\WebRA-v2.9-Win64-26Dec2023			
Web RA Version: 292			
Web RA Database Version: 292			
Machine Name / Port: 192.168.2.64 / 1433			
Database Name: Web RA			
	Next	Car	ncel

**4.5.11.** Click the **Next** button to start the upgrade progress.

Upgrade F	rogress					
	ebsite paths to the new				^	
	osite for Web RA Device					
	TPS Binding for Web RA osite for Web RA SSL De					
		rvice site : windowsIntegr	atedCepService			
		vice site : windowsIntegra				
		ows CEP service website for	or Web RA window enrolment :	services :		
	gratedCepService					
	rName/Password windo gratedCesService	ows CES service website fo	or Web RA window enrorment s	services :		
		ebsite for Web RA windo	w enrolment services : windows	sIntegratedCepServ	vice	
			v enrolment services : windows			
	tem settings					
		ficate to the new structure	e			
	e certificate to the new rade completed!	structure completed				
Web KA upg	rade completed:					
					~	

- **4.5.12.** Click the **Finish** button to complete the ADSS Web RA upgrade process. Newly added modules will be deployed in IIS.
- It is recommended to restart IIS after upgrade installation of ADSS Web RA.



# 4.6 Changing Database Credentials for an Existing Installation

Database credentials stored by ADSS Web RA are encrypted for security purpose. If you need to make changes in your database server configurations, then these changes must be reflected in the ADSS Web RA installation for the signing operations to continue.

ADSS Web RA provides an option through the installer to update the following types of database related information:

- Database username and password.
- **Database name** and/or **server** (in case if database is restored from production database otherwise you need to install with existing database option).
- Authentication types (from SQL Server to Windows authentication and vice versa)

**4.6.1.** Follow the installation wizard, and select the **"Change database credentials"** option, when the **Installation Type** screen is shown:

	-		×
🔶 🔏 Web RA Installer			
Installation Type			
○ Install Web RA for the first time			
O Install Web RA as another instance within a load-balanced configuration			
<ul> <li>Install Web RA with an existing database</li> </ul>			
O Upgrade an existing Web RA instance to the latest one			
Ochange database credentials			
O Uninstall Web RA			
]	Next	Can	cel

4.6.1. Click the Next button to show the License Agreement.



License Agre	ement					
	ER SOFTWARE LICENS					^
INFORMAT - P	LEASE NEAD CAREFUL	A. T -				
1.0 ACCEPTANO						
			re (the Software) and do			
			or as an authorised repr n that you accept all of t			
			as the Licensee) can acce			
			proceed with the installat			
this License Age further use of the		disagree" button bel	ow and exit the installation	on process and ma	ike no	
further use of th	ie software.					
<b>BY INSTALLING</b>	AND USING THIS ASC	ERTIA SOFTWARE, YO	U AGREE FOR YOU OR Y	OUR ENTERPRISE	TO BE	
			IOT AGREE TO THE TERM	IS OF THIS AGREE	MENT, DO	
NOT INSTALL C	R USE THE ASCERTIA	OFTWARE.				
Licensee and As	certia may hereinafter	be referred to as indi	vidually, a "Party", or, to	gether, the "Parties		
2.0 LICENSE						
Evaluation Cop			re on an evaluation basis			
			a maximum of 3 month			
install the Softw	are. After this you mu	ist pay the appropriat	e license fee to continue	to use the Softwar	e. To pay	v

**4.6.1.** Click the **I Agree** button to proceed. The following screen for **Database Configurations** will be displayed.

Web KA Database	Configurations		
Database Managemer	nt System Type		
Microsoft SQL	Server		
Installation Type			
Basic	Advanced		
Database Configuration	ons		
Database Server:	Production-Server		
Port:	1433		
Database Name:	WebRA		
	Use windows authentication		
Username:	sa		
Password:	*****	7	
		_	

**4.6.1.** Click the **Next** button to update the database configurations.



	_		×
🗧 🤧 Web RA Installer			
Installation Progress			
Changing database credentials process started Web RA Admin database credentials changed		^	
Web RA Web database credentials changed Web RA API database credentials changed			
Web RA Device database credentials changed			
Web RA SSL Device database credentials changed Web RA Windows Integrated CEP service database credentials changed			
Web RA Windows Integrated CES service database credentials changed Web RA Windows UserName/Password CEP service database credentials changed			
Web RA Windows UserName/Password CES service database credentials changed Web RA Windows SSL CES service database credentials changed			
Web RA Windows SSL CES service database credentials changed Changing database credentials process completed			
changing database credentials process completed			
		~	
		Fin	ish

**4.6.1.** Click the **Finish** button to update the database configurations.

# 4.7 Regular Release Installation

Follow the instructions below to install ADSS Web RA's regular release. Before starting the installation make sure that you have taken a backup of the Web RA database and have stopped the IIS Server.

To stop the IIS Server, launch the IIS Server and click Stop under the Manage Server action.

← → • WEBRA-RC1 →									
File View Help Connections Co	Filter: ASP.NET NET Authorizat Machine Key	.NET		Show All NET Globalization Session State	.NET Trust Levels	Application Settings	• • • • • • • •		Start Stop View Application Pools View Sites Get New Web Platform Components
v2.9_RR_windowsSsICepServix     v2.9_RR_windowsSsICesServic     v2.9_RR_windowsUserNameP     v2.9_RR_windowsUserNameP	Authentic	Compression	Default Document	Directory Browsing	Error Pages	Failed Request Tra	Handler Mappings	~	



**4.7.1** Launch the installer by right-clicking the file name [Web RA Regular Release Installation Directory]/setup/install.bat and select Run as administrator. Follow the installation wizard as described below:

The Welcome screen will appear:

	- 0
🐍 Web RA Installer	
Welcome to Web RA	
Web RA is a central application for key management and certificate generation in register users to offer them different sets of certification services. It can also regis RAS/SAM services as well as push users to Web RA. All of them are powerful app documents using these keys. Web RA is ideal for the organizations that are lookin and distribution process by implementing strong vetting for the issuance of these documents using the set with the set of the	ter users to ADSS CSP services, ADSS lications to create certificates and sign the ng to centrally control the certificates creati
Web RA consists of the following modules:	
- Web RA Admin - Web RA Desktop Web - Web RA API (RESTful Web Services) - Web RA Device - Web RA Windows Enrolment	
We strongly recommend you to follow the installation instructions provided in $\underline{\mathbb{V}}$	Veb RA Installation Guide
U.S. Patent No. 7,360,079	
	Next Cance

**4.7.2** Click the Next button to continue. The system requirements screen will appear next to validate if all the required prerequisites are installed.



🐍 Web RA Installer		
Checking System Requirements		
Microsoft .NET Framework v4.8 or above ASP .Net Core v8.0.0 or above		ccess
ASP .Net Core v8.0.0 or above Microsoft Internet Information Services (IIS) v10.0 or above		ccess
URL Rewrite in Internet Information Services (IIS)		ccess
ASP .Net Core Module in Internet Information Services (IIS) runtime support	Su	ccess

4.7.3 Click the Next button to show the Installation Type.

<ul> <li>Web RA Installer</li> <li>Installation Type</li> <li>Install Web RA for the first time</li> <li>Install Web RA as another instance within a load-balanced configuration</li> <li>Install Web RA with an existing database</li> <li>Upgrade an existing Web RA instance to the latest one</li> <li>Apply release v2.9.1 to an existing Web RA instance</li> <li>Change database credentials</li> <li>Uninstall Web RA</li> </ul>	Installation Type         Install Web RA for the first time         Install Web RA as another instance within a load-balanced configuration         Install Web RA with an existing database         Upgrade an existing Web RA instance to the latest one         Apply release v2.9.1 to an existing Web RA instance         Change database credentials			<u></u>		
<ul> <li>Install Web RA for the first time</li> <li>Install Web RA as another instance within a load-balanced configuration</li> <li>Install Web RA with an existing database</li> <li>Upgrade an existing Web RA instance to the latest one</li> <li>Apply release v2.9.1 to an existing Web RA instance</li> <li>Change database credentials</li> </ul>	<ul> <li>Install Web RA for the first time</li> <li>Install Web RA as another instance within a load-balanced configuration</li> <li>Install Web RA with an existing database</li> <li>Upgrade an existing Web RA instance to the latest one</li> <li>Apply release v2.9.1 to an existing Web RA instance</li> <li>Change database credentials</li> </ul>	🔏 Web RA Installer				
<ul> <li>Install Web RA as another instance within a load-balanced configuration</li> <li>Install Web RA with an existing database</li> <li>Upgrade an existing Web RA instance to the latest one</li> <li>Apply release v2.9.1 to an existing Web RA instance</li> <li>Change database credentials</li> </ul>	<ul> <li>Install Web RA as another instance within a load-balanced configuration</li> <li>Install Web RA with an existing database</li> <li>Upgrade an existing Web RA instance to the latest one</li> <li>Apply release v2.9.1 to an existing Web RA instance</li> <li>Change database credentials</li> </ul>	Installation Type				
<ul> <li>Install Web RA with an existing database</li> <li>Upgrade an existing Web RA instance to the latest one</li> <li>Apply release v2.9.1 to an existing Web RA instance</li> <li>Change database credentials</li> </ul>	<ul> <li>Install Web RA with an existing database</li> <li>Upgrade an existing Web RA instance to the latest one</li> <li>Apply release v2.9.1 to an existing Web RA instance</li> <li>Change database credentials</li> </ul>	O Install Web RA for the first time				
<ul> <li>Upgrade an existing Web RA instance to the latest one</li> <li>Apply release v2.9.1 to an existing Web RA instance</li> <li>Change database credentials</li> </ul>	<ul> <li>Upgrade an existing Web RA instance to the latest one</li> <li>Apply release v2.9.1 to an existing Web RA instance</li> <li>Change database credentials</li> </ul>	Install Web RA as another instance within a load-balanced configuration				
<ul> <li>Apply release v2.9.1 to an existing Web RA instance</li> <li>Change database credentials</li> </ul>	<ul> <li>Apply release v2.9.1 to an existing Web RA instance</li> <li>Change database credentials</li> </ul>	O Install Web RA with an existing database				
Change database credentials	Change database credentials	O Upgrade an existing Web RA instance to the latest one				
		Apply release v2.9.1 to an existing Web RA instance				
Uninstall Web RA	O Uninstall Web RA	Change database credentials				
		O Uninstall Web RA				
			Ne	xt	Car	ice



### **4.7.4** Click Next button to view and accept the License Agreement.

icense Agreement	
ASCERTIA SERVER SOFTWARE LICENSE AGREEMENT	^
MPORTANT - PLEASE READ CAREFULLY: v2.9.1	
.0 ACCEPTANCE.	
Ascertia Limited ("Ascertia") is willing to license this software (the Software) and documentation (together the	
Product) in this installation package to you as an individual or as an authorised representative of the company or	
egal entity that will be using the Software only on condition that you accept all of the terms of this license	
agreement. You or the company or legal entity (referred to as the Licensee) can accept the terms of this License Agreement by clicking on the "I agree" button below, and proceed with the installation. To reject the terms of	
his License Agreement, click on the "I disagree" button below and exit the installation process and make no	
urther use of the software.	
BY INSTALLING AND USING THIS ASCERTIA SOFTWARE, YOU AGREE FOR YOU OR YOUR ENTERPRISE TO BE	
BOUND BY THE TERMS OF THIS AGREEMENT. IF YOU DO NOT AGREE TO THE TERMS OF THIS AGREEMENT, DO	
NOT INSTALL OR USE THE ASCERTIA SOFTWARE.	
icensee and Ascertia may hereinafter be referred to as individually, a "Party", or, together, the "Parties."	
2.0 LICENSE	
valuation Copy. If you acquired the license for the Software on an evaluation basis, you may use the Software	
without charge until the evaluation limits are reached or for a maximum of 3 months from the day that you	
nstall the Software. After this you must pay the appropriate license fee to continue to use the Software. To pay	~

### **4.7.5** Click the I Agree button to proceed to the Read Me.

README	
Note: Consult Web RA installation guide if you want to install this version as fresh instance.	^
ADSS Web RA Server 2.9.1 supports	
ADSS Web RA Server now supports the domain names (DNS) configuration on enterprise level for domain verification of TLS/SSL certificates. Now, operators and users can create TLS/SSL certificates with pre-configured Jomain names.	
ADSS Web RA Server now allows an operator to set request notes against each step in the certificate generation process. It can be managed by an enterprise and these notes will be applicable to all types of certificate requests	
ADSS Web RA Server introduces the latest enhancement to our Automated Certificate Management Environmer ACME) the ACME Renewal Information (ARI) Extension. With ARI, managing certificate renewal and information s easier.	
ADSS Web RA Server now allows users to register via citizen ID as the unique identifier. User registration also upports auto-registration of Virtual ID and SigningHub account, certificate generation and auto-provisioning /irtual ID certificate to SigningHub.	
n the ADSS Web RA Server, users now have the ability to generate certificates for various purposes using Deskto signing profiles. Additionally, administrators can manage certificate provisioning through enterprise roles.	p 🗸



4.7.6 Click the Next button to provide the existing Web RA directory addresses:

Browse
ti di
12024 Browse

Click the Browse button against the existing Web RA installation directory. Then click the Browse button against the backup Web RA directory, to browse to the addresses for the respective directories:

By default, when the existing Web RA installation directory address is selected, the installer will automatically create a backup Web RA folder and select it as backup directory. However, if the user wants to change the backup directory, they can click "Browse" and manually select the backup directory.

Click the Yes button to confirm that you have taken a backup of the database and have stopped the IIS before proceeding with the installation:

Existing Web RA C	onigurations	
Browse the existing Wel	o RA installation directory:	
C:\WebRA\Installer-RR	\WebRA-v2.9-Win64-26Dec2023	Browse
Web RA release will be a	applied to this directory.	(d)
Browse the backup We	Web RA Installer	
C:\WebRA\Installer-RF	Web KA Installer	Browse
Please ensure read/writ	Please confirm that you have taken a backup of the database and have stopped IIS before proceeding with the installation	
	Yes No	
	ure that you have taken backup of the Web RA database	



**4.7.7** Click the Finish button to complete the installation process.

Release Progress	
Executing 'v291' patch scripts on database 'v2.9-RR-367' Creating a backup of the existing Web RA installation directory Applying release v2.9.1 files to path: C:\WebRA\Installer-RR\WebRA-v2.9-Win64-26Dec2023 Web RA release applied successfully!	*



# 4.8 Uninstalling Regular Release

Follow the instructions below to uninstall ADSS Web RA's regular release. Before starting the uninstallation make sure that you have taken a backup of the Web RA database and have stopped the IIS Server.

To stop the IIS Server, launch the IIS Server and click Stop under the Manage Server action.

SERVER2022-WEI     View Help	IR ► Sites ►	14034-admin	•						🖬 🖂 🔂 (
ile View Help nnections	<b>A</b>							Ac	tions
Image     Start Page     A     SERVER2022-WEBR (ASCEF	Filter:	034-admii		Show All	Group by: A	rea	• • • •	2	Explore Edit Permissions Edit Site
→ Application Pools → - Sites → ● 14034-admin		-	0		404	2	·	<b>^</b>	Bindings Basic Settings
> 🔮 14034-api > 🔮 14034-device > 🚭 14034-web	Authentic	Compression	Default Document	Directory Browsing	Error Pages	Handler Mappings	HTTP Respon	11.	View Applications View Virtual Directories
<ul> <li>Ssldevice</li> <li>v292_Fresh_admin</li> <li>v292_Fresh_api</li> <li>v292_Fresh_device</li> </ul>	Logging	MIME Types	Modules	Output Caching	Request Filtering	SSL Settings	URL Rewrite	M. 2010	Start
> 😌 v292_Fresh_ssldevic > 😌 v292_Fresh_web > 😌 v29-v292_admin > 😌 v29-v292_api	WebDAV Authori							•	Browse Website Browse *:443 (https) Advanced Settings
> • v29-v292_device > • • v29-v292_ssldevice > • • v29-v292_web	Manageme	nt ew \overline Conten	t View				^	~	Configure Limits HSTS

**4.8.1** Launch the installer by right-clicking the file name [Web RA Regular Release Installation Directory]/setup/install.bat and select Run as administrator. Follow the installation wizard as described below:

The Welcome screen will appear:

	_		×
Welcome to Web RA			
Web RA is a central application for key management and certificate generation in the Ascertia product s register users to offer them different sets of certification services. It can also register users to ADSS CSP s RAS/SAM services as well as push users to Web RA. All of them are powerful applications to create certif documents using these keys. Web RA is ideal for the organizations that are looking to centrally control t and distribution process by implementing strong vetting for the issuance of these certificates.	ervices, A	ADSS id sign th	e
Web RA consists of the following modules:			
- Web RA Admin - Web RA Desktop Web - Web RA API (RESTRUI Web Services) - Web RA Device - Web RA Windows Enrolment			
We strongly recommend you to follow the installation instructions provided in Web RA Installation Guid	le		
U.S. Patent No. 7,360,079			
	Next	Can	cel



**4.8.2** Click the Next button to continue. The system requirements screen will appear next to validate if all the required prerequisites are installed.

	-	×
🗧 🥻 Web RA Installer		
Checking System Requirements		
Microsoft .NET Framework v4.8 or above ASP .Net Core v8.0.0 or above Microsoft Internet Information Services (IIS) v10.0 or above URL Rewrite in Internet Information Services (IIS) ASP .Net Core Module in Internet Information Services (IIS) runtime support	Succi Succi Succi Succi	255 255 255
	Next	Cancel

4.8.3 Click the Next button to show the Revert option.

	_		×
← 🔏 Web RA Installer			
Installation Type			
O Install Web RA for the first time			
<ul> <li>Install Web RA as another instance within a load-balanced configuration</li> </ul>			
<ul> <li>Install Web RA with an existing database</li> </ul>			
<ul> <li>Upgrade an existing Web RA instance to the latest one</li> </ul>			
Apply release v2.9.2 to an existing Web RA instance			
Revert to previous release			
Change database credentials			
O Uninstall Web RA			
	Next	Can	cel



**4.8.4** Click Next button to view and accept the License Agreement.

icense Agreement	
license Agreement	
ASCERTIA SERVER SOFTWARE LICENSE AGREEMENT	^
IMPORTANT - PLEASE READ CAREFULLY:	
1.0 ACCEPTANCE	
Ascertia Limited ("Ascertia") is willing to license this software (the Software) and documentation	n (together the
Product) in this installation package to you as an individual or as an authorised representative of	
legal entity that will be using the Software only on condition that you accept all of the terms of	
agreement. You or the company or legal entity (referred to as the Licensee) can accept the term	
Agreement by clicking on the "I agree" button below, and proceed with the installation. To reject this License Agreement, click on the "I disagree" button below and exit the installation process a	
further use of the software.	ind make no
BY INSTALLING AND USING THIS ASCERTIA SOFTWARE, YOU AGREE FOR YOU OR YOUR ENTERF BOUND BY THE TERMS OF THIS AGREEMENT. IF YOU DO NOT AGREE TO THE TERMS OF THIS AG	
NOT INSTALL OR USE THE ASCERTIA SOFTWARE.	SKEEMEINT, DO
Licensee and Ascertia may hereinafter be referred to as individually, a "Party", or, together, the "	Parties."
2.0 LICENSE	
Evaluation Copy. If you acquired the license for the Software on an evaluation basis, you may u	se the Software
without charge until the evaluation limits are reached or for a maximum of 3 months from the o	
install the Software. After this you must pay the appropriate license fee to continue to use the S	oftware. To pay

4.8.5 Click the I Agree button to proceed to the Read Me.

	-		×
🐍 Web RA Installer			
README			
 Instructions			
* Verify that the database backup for version 2.9.2 has been successfully created.			
* Ensure that the database is reverted to version 2.9.1.			
* Ensure that the 2.9.1 release is intact. * Reverting to version 2.9.1 will result in the removal of all modifications implemented in the 2.9.2	release.		
	Next	Ca	incel



### 4.8.6 Click the Next button to provide:

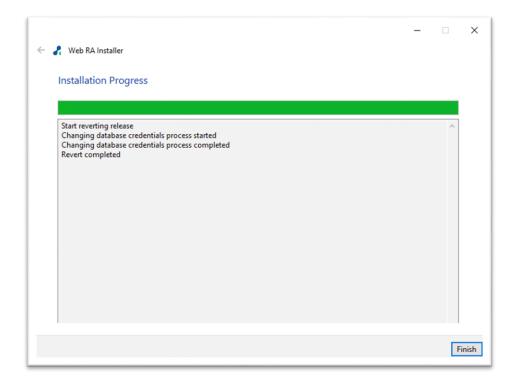
- 1. Browse the existing Web RA installation directory
- 2. Previous release backup directory will be set automatically. You also have the option to browse and select your own path.

	_		$\times$
– 🥜 Web RA Installer			
Previous Web RA Directory			
Browse the existing Web RA installation directory:			
C:\Deployment\17may\WebRA-v2.9-Win64-26Dec2023	Browse		
Browse previous release backup directory:			
C:\Deployment\17may\WebRA-v2.9-Win64-26Dec2023\backup\Pre-WebRA-v2.9.1-RR-Win64-23Fe	Browse		
	Nex	t C	ancel

4.8.7 Click next to view database details:

– Database Managen	se Configurations	
<ul> <li>Microsoft S</li> </ul>		
Installation Type		
Basic	○ Advanced	
– Database Configura	tions	
Database Server:	192.168.2.64	
Port:	1433	
Database Name:	v2.9.1	
	Use windows authentication	
Username:	sa	
Password:	*****	

**4.8.8** Click the Finish button to complete the installation process.





# 5 ADSS Web RA Uninstallation

Though we will not be pleased to let you go, but sometimes we have to say goodbye. You may uninstall ADSS Web RA Installer anytime.

5.1. Right-click on the [ADSS Web RA Directory]/setup/install file and click Run as administrator.

5.2. Follow the installation wizard until the Installation Type screen is shown.

		_		×
🐍 Web RA Installer				
Installation Type				
O Install Web RA for the first time				
O Install Web RA as another instance within a load-balanced of	configuration			
O Install Web RA with an existing database				
O Upgrade an existing Web RA instance to the latest one				
Change database credentials				
Uninstall Web RA				
		Next	Can	cel

Select "Uninstall Web RA" to remove all websites from IIS mapped and this directory.

**5.3.** Click the **Next** button to proceed further. The following screen is shown.

			-		×
🔶 🔏 Web RA Installer					
Uninstallation Summary	,				
The following modules will be u	uninstalled:				
- Web RA Admin - Web RA Desktop Web					
- Web RA API (RESTFul Web Serv	vices)				
- Web RA Device - Web RA SSL Device					
- Web RA Windows Enrolment S	Services				
			Next	Can	cel



5.4. Click the Next button to proceed with the uninstallation process.

Uninstallation Progress	
Uninstallation process started	~
Uninstalling Web RA Admin module Uninstalling Web RA Web module	
Uninstalling Web RA Web Services API module	
Uninstalling Web RA Device module Uninstalling Web RA SSL Device module	
Uninstallation process completed	Ţ
	~
	$\checkmark$

5.5. Click the Finish button to complete the process.



This procedure does not remove the system database and its respective contents. You need to remove database manually.



# 6 Appendix

# 6.1 Troubleshooting

**6.1.1** If ADSS Web RA Admin module is installed on Windows 2012 R2, then the HTTP 403.16 error code may occur when you access the ADSS Web RA Admin console from web browser.

Follow these instructions to solve this issue:

a. Open registry and add the key:

KEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Control\SecurityProviders\SCHANNEL

- b. Create a new key with Value Type: REG\_DWORD (32-bit)
- c. Set Value Name: ClientAuthTrustMode
- d. Edit the field and set Value Data: 2

If you are interested to know more details about it, browse the Microsoft KB link: <u>https://support.microsoft.com/en-us/kb/2464556.</u>

**6.1.2** If you receive the HTTP error code 500.19 whilst accessing Admin, Web or API then:

- a. Open IIS Management Console.
- b. Go to Application Pools.
- c. Select a site and click Advanced Setting.
- d. In General, make sure that Enable 32-Bit Applications is set to False.
- **6.1.3** If you cannot start ADSS Server from Windows Services panel on Azure, then make sure that you are not starting those services under Windows user that you have created while creating the Azure instance. You must create another Windows user with Administrative rights and start the services under that user.
- Upon deploying to the server, you must keep in mind that the firewall and ports are open so that user can access the application from outside.
  - In **Firewall > Outbound Rules**. Open the ports if you want to 80-90, 440-450.
- Make sure the Directory has IIS permissions where code files are published.

📕 WebRA Properties 🛛 🕹 🕹		
	Permissions for WebRA	×
General Sharing Security Previous Versions Customize	Security	
Object name: D:\WebRA		
Group or user names;	Object name: D:\WebRA	
Authenticated Users	Group or user names:	
SYSTEM	Authenticated Users	
Administrators (DOTNET-TAHSEEN\Administrators)	SYSTEM	
Users (DOTNET-TAHSEEN\Users)	Administrators (DOTNET-TAHSEEN\Administrators)	
	Section 2018 Secti	
To change permissions, click Edit. Edit		
Permissions for Authenticated Users Allow Deny	Add Remove	
Full control	Permissions for Authenticated	
Modify 🗸	Users Select Users or Groups	;
Read & execute	Full contro	-
List folder contents 🗸	Modify Select this object type:	
Read 🗸	Read & ex Users, Groups, or Built-in security principals	Object Types
Write 🗸 🗸	List folder	
For special permissions or advanced settings, Advanced	Read DOTNET-TAHSEEN	Locations
	Enter the object names to select (examples);	
		Check Names
OK Cancel Apply		Check Wallies
	12/14/2018	
Mail	12/14/2018	
	4/10/2020 10 Advanced	OK Cancel



• Add / Install the SSL Server certificate in Microsoft Management Console which will be imported to IIS so, connection between server and application can be established successfully.

'aul' Jos Jos ← Ilar	Securificate Import Wizard	×
llar vin vin ub-	Welcome to the Certificate Import Wizard	
	This wizard helps you copy certificates, certificate trust lists, and certificate revocation lists from your disk to a certificate store.	
	A certificate, which is issued by a certification authority, is a confirmation of your identity and contains information used to protect data or to establish secure network connections. A certificate store is the system area where certificates are kept.	
	Store Location	
	Local Machine	
	To continue, dick Next.	
	Cancel	

• For API to work against all Verbs (GET,POST,DELETE,PUT etc) without **405** error, make sure WebDav Module remove against the API site.To do this click on "**API**" site in IIS ,select "**Modules**", find the "**WebDAVModule**" and remove it.

Act	
Modules Modules	Add Managed Module
Use this feature to configure the native and managed code modules that process reguests made to the Web server.	Configure Native Modules
	Edit
	Remove
Name Code Module Type Entry Type	Revert To Parent
DirectoryListingModule %windir%System32kinetsrv/ Netive Inherited	View Ordered List
DynamicCompressionModule %windir%/System32/inetsrv/ Native Inherited	
uynamiciphistricionwodue swindirsksystemszynestry Native innered	Help
FailedRequestsTracingModule %windir%System32kinetsrVi Native Inherited	
FastCgiModule %windir%/System32inetsrv/i Native Inherited	
FileAuthorization System.Web.Security.FileAuth Managed Inherited	
FormsAuthentication System.Web.Security.FormsA Managed Inherited	
HttpCacheModule %windir%System32kinetsrv/ Native Inherited	
HttpLoggingModule %windir%/System32/intersv/L. Native Inherited	
HttpRedirectionModule %windir%System32kinetsrVs Native Inherited	
ISCertificateMappingAuthenti %winds/%/System32/inetsrv/ Native Inherited	
IpRestrictionModule %windir%/System32/inttsrv/i Native Inherited	
IsapFilterModule %windir%/System32/inetsrv/f Native Inherited	
IsapiModule %windir%/System32/inetsrv/i Native Inherited	
OutputCache System.Web.Caching.Dutput Managed Inherited	
Profile System.Web.Profile.ProfileMo Managed Inherited	
ProtocolSupportModule %windir%System32inetsrv Native Inherited	
RequestFilteringModule %winds%System32inetsrv Native Inherited	
RewriteModule %SystemRoot%system3Zin Native Inherited	
RoleManager System.Web.Security.RoleMa Managed Inherited	
ScriptModule-4.0 System.Web.Handlers.Script. Managed Inherited	
ServerSideIncludeModule ?liwindir%/System32/inetsrv/i Native Inherited	
ServiceModel System.ServiceModel.Activati Managed Inherited	
ServiceModel-4.0 System.ServiceModel.Activati Managed Inherited	
Sesion System Web-SesionState-Ser. Managed Inherited	
StaticCompressionModule Nonindi/WSystem32inetstv/ Native Inherited	
StaticFileModule Swindr%System32(inetsr/u Native Inherited UMAuthorization System Web Security UMAuth Managed Inherited	
Uklashnization System.Web.Sexvity.Uklash Managed Inherited Uklashnization	
UrlRoutingModule-4.0 System:Web/Routing.UrlRoutin_ Managed Inherited Web/DAIModule Swindir/System:22unetsr/ Native Inherited	
webookmindoue semiolinopatrocomenzation - native innerene Webookmindoue Semiolinopatrocomenzationes - Native inherited	
Webookeminoduk twenty type and the second se	
windowsauteriotation system retractions, windows windows in the system s	
E Features View and Content View	



# 6.2 Configurations used for Simple Certificate Enrollment Protocol (SCEP)

**6.2.1** Make sure that following tag is added in "web.config" of web module:

<security></security>	
<requestfiltering></requestfiltering>	
<requestlimits maxquerystring="8192"></requestlimits>	
<pre>Configuration&gt; <location inheritinchildapplications="false" path="."></location></pre>	

SCEP server URL that will be used for router will be:

- "[Server URL]/scep" e.g "https://beta.web.ra.signinghub.com/scep
- Update URL value in Expect-CT header in "web.config" for web and admin modules according to your deployment URL. e.g. <add name="Expect-CT" value="max-age=0, reporturi='https://adminra.signinghub.com'" />

To test if the code is working properly for web, run command line in [installation-dir]/web and type following command:

C:\Windows\System32\cmd.exe	-	×
Microsoft Windows [Version 10.0.18363.778] (c) 2019 Microsoft Corporation. All rights reserved.		î
E:\onlineservices\WebRA\2.1\web>dotnet WebRA.Web.dll		
		$\sim$

To test if the code is working properly for admin, run command line in [installation-dir]/admin and type following command:



C:\Windows\System32\cmd.exe	 _	×
crosoft Windows [Version 10.0.18363.778] ) 2019 Microsoft Corporation. All rights reserved.		
\onlineservices\WebRA\2.1\admin>dotnet WebRA.Admin.dll		

## 6.3 SSL Certificates

ADSS Web RA is a web application that is hosted in IIS. It is recommended to secure the communication between the server and browsers by using SSL over HTTPS. It is also recommended to use an SSL certificate issued by a well-known certificate authority (CA) e.g., Comodo, Symantec, Digicert, etc.

The Administrators portal can be accessed only via TLS client authentication. A default TLS client certificate is already packaged into ADSS Web RA.

### 6.3.1 Exporting Root and Intermediate Certificates

- **6.3.2** In the [installation\_dir]/setup/certs directory there are two files with the name *web-ra-default-admin.cer* and *web-ra-default-admin.pfx*. TLS certificate is installed, but root certificates are not validated by the machine. To validate it, root certificate needs to be imported in the certificate store.
- 6.3.3 Double click the web-ra-default-admin.cer file

Certificate	$\times$
General Details Certification Path	
Certification path	
View Certificate	
Certificate status:	
This certificate is OK.	
OK	



**6.3.4** Select the Certification Path tab from the top. The default ADSS Web RA TLS certificate has one root certificate. Select the root certificate and click the View Certificate button. A new window will appear showing general details of the intermediate certificate.

🔲 Certificate		×
General Details Certi	fication Path	
Show: <all></all>	$\checkmark$	
Field	Value	^
Version	V3	
Serial number	0117271aac7a7a1524	
Signature algorithm	n sha256RSA	
Signature hash alg		
Issuer	ADSS Default Root CA, Ascerti	
Valid from	16 January 2014 08:43:02	
Valid to	09 September 2030 08:43:02	~
LimiSubject	ADSS Samples Test CA Ascert	_
	Edit Properties Copy to File	
	0	к

**6.3.5** Select the Details tab from the top and click Copy to File. This will initiate the certificate export wizard.

÷	🚰 Certificate Export Wizard
	Welcome to the Certificate Export Wizard
	This wizard helps you copy certificates, certificate trust lists and certificate revocation lists from a certificate store to your disk.
	A certificate, which is issued by a certification authority, is a confirmation of your identity and contains information used to protect data or to establish secure network connections. A certificate store is the system area where certificates are kept.
	To continue, dick Next.
	<u>N</u> ext Canc
÷	Sectificate Export Wizard  Export File Format Certificates can be exported in a variety of file formats.
÷	Certificate Export Wizard  Export File Format Certificates can be exported in a variety of file formats.  Select the format you want to use:
¢	Certificate Export Wizard  Export File Format Certificates can be exported in a variety of file formats.  Select the format you want to use:  DER encoded binary X.509 (.CER)
÷	Certificate Export Wizard  Export File Format Certificates can be exported in a variety of file formats.  Select the format you want to use:  OgER encoded binary X.599 (.CER)  Bage 64 encoded X.599 (.CER)
÷	Certificate Export Wizard  Export File Format Certificates can be exported in a variety of file formats.  Select the format you want to use:  DER encoded binary X.509 (.CER)
4	Certificate Export Wizard  Export File Format Certificates can be exported in a variety of file formats.  Select the format you want to use:  DER encoded binary X.599 (.CER)  Bage-64 encoded X.599 (.CER)  Cyptographic Message Syntax Standard - PKCS #7 Certificates (.P78)
÷	Certificate Export Wizard Export File Format Certificates can be exported in a variety of file formats. Select the format you want to use: <ul> <li>DER encoded binary X.509 (.CER)</li> <li>Bage 64 encoded X.509 (.CER)</li> <li>Desage 54 encoded X.509 (.CER)</li> </ul>
<i>~</i>	Certificate Export Wizard  Export File Format Certificates can be exported in a variety of file formats.  Select the format you want to use:
+	Certificate Export Wizard Export File Format Certificates can be exported in a variety of file formats. Select the format you want to use: <ul> <li>DER encoded binary X.509 (CER)</li> <li>@ Bage 54 encoded X.509 (CER)</li> <li>@ Cryptographic Message Syntax Standard - PKCS #7 Certificates (P78)</li> <li>@ Induke all certificates in the certification path if possible</li> <li>@ Detensional Information Exchange - PKCS #12 (P7x)</li> <li>@ Induke all certificates in the certification path if possible</li> <li>@ Detensional Information Exchange - PKCS #12 (P7x)</li> <li>@ Induke all certificates in the certification path if possible</li> <li>@ Detet the private legv if the export is successful</li> <li>@ Detet all private legv if the export is successful</li> <li>@ Detet all private legv if the export is successful</li> </ul>
<i></i>	Certificate Export Wizard Export File Format Certificates can be exported in a variety of file formats. Select the format you want to use:

6.3.6 Click Next.



### 6.3.7 Select the Base-64 encoded X.509 (.CER) option and click Next

← 🛿 Ertificate Export Wizard	×
File to Export Specify the name of the file you want to export	
File name:	
C:\sw\WEBRA-v1.0-WIndow64-01Oct2019\setup\certs\RootCA.ce	owse
Next	Cancel

**6.3.8** Choose a path where you want to save the certificate file for the intermediate certificate, and click Next.

←	ficate Export Wizard		×
Cor	mpleting the Certificate Exp	oort Wizard	
You h	have successfully completed the Certificate	Export wizard.	
You h	have specified the following settings:		
File	Name	C:\sw\WebRA-v1.0-Win64-01Oct2019	
Exp	oort Keys	No	
Ind	lude all certificates in the certification path	No	
File	Format	Base64 Encoded X.509 (*.cer)	
<		>	
		<u>F</u> inish Cano	el:

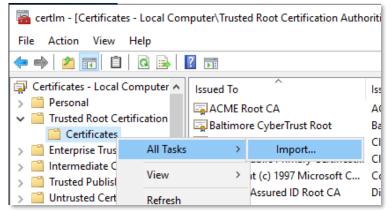
6.3.9 Click Finish to complete the root certificate export process.



# 6.4 Importing Root and Intermediate Certificates

Now that we have the intermediate and root certificates exported and saved in a local file, we can import it to the certificate store.

- 6.4.1 Launch certim.msc from the command prompt.
- 6.4.2 Expand the Trusted Root Certification Authorities folder from the left panel and right-click on Certificates. Now select All Tasks and then Import...



6.4.3 A certificate import wizard appears, Click Next to proceed.

🔶 🛿 Ertificate Import Wizard	×
Welcome to the Certificate Impo	rt Wizard
This wizard helps you copy certificates, certificate to lists from your disk to a certificate store.	rust lists, and certificate revocation
A certificate, which is issued by a certification author and contains information used to protect data or to connections. A certificate store is the system area v	establish secure network
Store Location Current User Local Machine	
To continue, dick Next.	
	<u>N</u> ext Cancel



6.4.4 Browse the root certificate that we recently exported and click Next to proceed.

	o Import
5	Specify the file you want to import.
E	jile name:
[	C:\sw\WebRA-v1.0-Win64-01Oct2019\setup\certs\Root CA.cer Browse
N	Note: More than one certificate can be stored in a single file in the following formats:
	Personal Information Exchange- PKCS #12 (.PFX,.P12)
	Cryptographic Message Syntax Standard- PKCS #7 Certificates (.P7B)
	Microsoft Serialized Certificate Store (.SST)

6.4.5 Click Next to proceed.

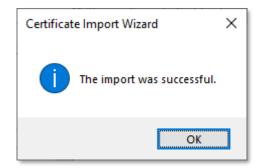
Certificate			
Certific	ate stores are system areas where certificates are kep	t.	
	vs can automatically select a certificate store, or you ca tificate.	an speci	fy a location for
0	Automatically select the certificate store based on the t	ype of o	ertificate
۲	lace all certificates in the following store		
	Certificate store:		
	Trusted Root Certification Authorities		Browse

0

**6.4.6** The root certificate is imported to the certificate store, click **Finish**.

÷	ᡒ Cert	ificate Import Wizard		^
	Co	ompleting the Certific	ate Import Wizard	
	The	certificate will be imported after	you click Finish.	
	You	have specified the following setti	ings:	
	C	-	Trusted Root Certification Authorities Certificate	
		e Name	C: \sw\WebRA-v1.0-Win64-01Oct2019\setup\certs\R	
	<		>	
			<u> </u>	

**6.4.7** A prompt will appear informing about the successful import of the certificate.



If you want to deploy the application for testing purpose you may want to use a self-signed certificate for proof of concept.



# 6.5 Generate a Self -Signed Certificate

For testing purpose or proof of concept, mostly a self-signed certificate will be required. It is easy to create a self-signed certificate with IIS.

#### 6.5.1 Launch the IIS Manager.

File View Help		
File View Help Connections → → → → → → → → →	WEBDEV_01 Home       Filter:     • 🕅 💿 <table-cell> Show All Group by: Area     • 📰 •       ASP Jutt     Image: Show All Group by: Area     • 📰 •       Astherizet.     Completion     NET forer       Authorizet.     Completion     NET forer       Pages and Controls     Providers     Session State SMIP E-mail</table-cell>	Actions Manage Server Restat Restat Restat Res Age Ver Ageflicten Resis Ver Sea Charge AET Framework Version Online Help Online Help
	B     Image: Configuret.     Image: Configuret. <t< td=""><td></td></t<>	

6.5.2 Click the Server Name from the Server Connections.





6.5.3 Double-click on Server Certificates from the IIS section in the middle panel.

Conternet Information Services (BS) Manager					
() () *] • WEBDEV_01 •					🖬 🗐 🏠 🔞 •
File View Help					
	Vie this feature to request Name		he Web server can use with Web s	ites configured for SSL. Expiration Date	Actions Import_ Create Certificate Request_ Complete Certificate Request_ Create Self-Signed Certificate. Create Self-Signed Certificate. Philp Online Help
Ready	<	m. tent View		,	

6.5.4 Click Create Self-Signed Certificate... under the right Actions column.

Create Self-Signed Certificate	8 X
Specify Friendly Name	
Specify a file name for the certificate request. This information can be sent to a certificate authority for signing:	
Specify a friendly name for the certificate:	
ОК	Cancel



### 6.5.5 Provide a meaningful name and press OK.

Internet Information Services (IIS) Manager					• • • ×
() () VEBOEV_01 >					
File View Help					
File     View     Help       Connections       Image: Stest       Image: Stest	Server Ce Use this feature to reque Name localheatsal		e Web server can use with Web si Issued By Webdev,01	tes cenfigured for SSL. Expiration Date 2/20/2013 7:00	Import         Create Cestificate Request         Complete Cestificate Request         Create Self-Signed Cestificate         Create Self-Signed Cestificate         Online Help
	*			,	
	Features View 💦 Con	ntent View			
Ready					¶1.:

Now you have an SSL certificate that is self-signed and is valid for one year. You can select this certificate for creation of HTTPS binding for testing and proof of concept purposes.



# 6.6 Generate a CSR for an SSL Certificate

To generate a self-signed SSL certificate follow the steps below:

6.6.1 Launch certim.msc from the command prompt.

🚡 cert	🚡 certlm - [Certificates - Local Computer\Personal] — 🛛 🗙							×		
<u>File Action View H</u> elp										
🗢 🌩	2	1 🗎 🔍 🗟 📄 🚺 🖬								
	ficates -	Local Computer	^	Object Type						
	rus	Find Certificates		There are no i	tems to	o sha	w in this	view.		
> 🖺 E	inte	All Tasks >		Find Certificates						
🗸 🛄 li	nte	View >	Request New Certificate							
		Refresh		Import						
> 🖺 T	īrus	Export List		Advanced Operations	>		Create	Custom	Request	
	Jnt Thir	Help					Manag	e Enrollr	ment Policies	
	rusted P	eople	jes							

6.6.2 From the left menu, select and right-click the Personal folder. From the context menu, select All Tasks > Advanced Operations > Create Custom request. A new dialog will appear for certificate enrollment.

📮 C	Certificate Enrollment	-		×
	Before You Begin			
	The following steps will help you install certificates, which are digital credentials user networks, protect content, establish identity, and do other security-related tasks.	d to conne	ct to wire	less
	Before requesting a certificate, verify the following:			
	Your computer is connected to the network You have credentials that can be used to verify your right to obtain the certificate			
		Next	Can	cel

6.6.3 Press Next to proceed.

		-		×
📮 C	ertificate Enrollment			
	Select Certificate Enrollment Policy			
	Certificate enrollment policy enables enrollment for certificates based on predefine Certificate enrollment policy may already be configured for you.	d certificate	templates	5.
	Configured by you		Add Ne	w
	Custom Request Proceed without enrollment policy			
	E	<u>N</u> ext	Canc	el

### 6.6.4 Select Proceed without enrollment policy then click Next.

🛱 Certificate Enrollment		-		~
Custom request				
Chose an option from	the list below and configure the certificate options as required.			
Template:	(No template) CNG key		~	
	Suppress default extensions			
Request format:	<u> <u> </u> </u>			
	<u>○ c</u> mc			
	not available for certificates based on a custom certificate request the certificate template.	t, even w	vhen this	
	4	<u>l</u> ext	Can	cel

6.6.5 Accept the default values and press Next without changing anything

		-	
tificate Enrollment			
ertificate Information			
lick Next to use the options already equest, and then click Next.	r selected for this template, or click Details to c	ustomize tł	ne certific
Custom request	i) STATUS: Available		Details
The following options describe Key usage: Application policies: Validity period (days):	the uses and validity period that apply to this		ificate: roperties
	[	<u>N</u> ext	Car

6.6.6 Click Details and the Properties button will appear. Click Properties.

Certificate Properties	×
General Subject Extensions Private Key	
The subject of a certificate is the user or computer to which the certificate is issued. Yi can enter information about the types of subject name and alternative name values th can be used in a certificate.	
Subject of certificate	
The user or computer that is receiving the certificate	
Subject name:	_
Iype: CN=webra.pki.acme.com	
Full DN V Add > O=ACME	
Value: C=GB	
< Remove	
Alternative name:	- 1
Type: DNS	
DNS v	
Value:	
Add >	
< Remove	
	_
OK Cancel Appl	y



6.6.7 Select the Subject tab from the top. For subject name enter CN=webra.pki.acme.com,

OU=Web Servers, O=ACME, C=GB in the value and press Add >. For Alternate name enter DNS value as webra.pki.acme.com.

These values are the sample values used for certificate creation and can be replaced with the realistic data.

Certificate Properties		$\times$
General Subject Extensions Private Key		
The following are the certificate extensions for this certificate type.		^
Key usage	^	
The key usage extension describes the purpose of a certificate. Available options: CRL signing Data encipherment Decipher only Key agreement Key agreement Key certificate signing < Remove		
✓ Make these key usages critical		
Extended Key Usage (application policies)	•	
Basic constraints	*	~
OK Cancel	<u>A</u> pply	

- **6.6.8** Select the Extensions tab from the top. Select the Key usage option from the drop down extensions. Now from the Available options, choose the following:
- Digital signature
- Key encipherment
- Non repudiation

Make sure you tick the Make these key usages critical checkbox.

**6.6.9** Now select the Extended Key Usage (application policies) from the drop down, and Server Authentication from the list.

Certificate Properties		×
General Subject Extension	Private Key	
	ed enhanced key usage in Windows 2000) defines how a ect the application policy required for valid signatures of	^
Available options: Client Authentication Code Signing Secure Email Time Stamping Microsoft Trust List Signin Microsoft Time Stamping IP security unnel termina IP security tunnel termina IP security user	Add > Selected options: Add > Add >	l
Make the Extended Key	Usage critical	
Include Symmetric algori	hm 🗸	1
	OK Cancel Appl	¥ y



**6.6.10** Select the Private Key tab from the top. Select the Cryptographic Service Provider option from the first drop down and Key options from the second drop down. Change the Key size to 2048 and click OK. The Certificate Enrollment screen will appear again.

Certificate Properties	×
General Subject Extensions Private Key	
Cryptographic Service Provider	*
Key options	^
Set the key length and export options for the private key.	
Key size: 2048 ~	
Make private key exportable	
Allow private key to be archived	
Strong private key protection	
Select <u>H</u> ash Algorithm	٣
Select Signature <u>F</u> ormat	~
Key germissions	~
OK Cancel	Apply

6.6.11 Press Next to proceed.

		-		Х
🔄 Certificate Enrollment				
Certificate Information				
Click Next to use the options request, and then click Next.	lready selected for this template, or click Details to cu	istomize th	ne certifica	ite
Custom request	i) STATUS: Available		Details	^
Key usage:	scrübe the uses and valiidity period that apply to this t Digital signature Key encipherment Non repudiation Server Authentication :		ificate: roperties	
	E	Next	Can	icel

**6.6.12** Browse the location to save the request file and select the Base 64 file format. Press Finish. This request file can be submitted to any CA to create a certificate against this request. Every CA processes the request and generates a certificate as per their own policy. Once the certificate is received from a CA it can be imported into the certificates.

	-		×
🗔 Certificate Enrollment			
Where do you want to save the offline request?			
If you want to save a copy of your certificate request or want to process the request la to your hard disk or removable media. Enter the location and name of your certificate click Finish.			st
File Name:			
C:\sw\webra.pki.acme.com.req	<u>B</u> I	owse	
File format: ● Base 64 ○ Binary			
	inish	Cano	el:

For further details contact us on sales@ascertia.com or visit www.ascertia.com

\*\*\* End of Document \*\*\*