



RESOURCE AND PATIENT MANAGEMENT SYSTEM

Electronic Clinical Quality Measures Engine

(ECQM)

Installation Guide and Release Notes

Version 7.0
January 2025

Office of Information Technology
Division of Information Technology

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Revision History

Version	Date	Author	Section	Page	Summary of Change
1.0	December 2020	GDIT	All	All	Updates for Version 3.0 release.
2.0	January 2021	GDIT	2.2.1, 2.2.1.1, and 2.4	2,3, and 5	Removed references to Windows Server 2008 and IIS 7, 7.5 and 8.0. Corrected the “EQCM” spelling error to “ECQM”. Removed Section 2.2.1.1 as it was no longer needed. Removed the reference to Windows server 2008.
4.0	November 2021	GDIT	1.0, 2.8	1, 12	Updates for Version 4.0 release.
4.0 Patch1	January 2022	GDIT	1.0	Multiple	Updates for Version 4.0 Patch 1 release.
5.0	September 2022	GDIT	All	Multiple	Updates for Version 5.0 release.
6.0	December 2023	GDIT	All	Multiple	Updates for Version 6.0 release.
6.0 Patch 1	August 2024	GDIT	All	Multiple	Updates for Version 6.0 Patch 1 release.
7.0	December 2024	GDIT	All	Multiple	Updates for Version 7.0 release.

Preface

This manual describes the installation of the Electronic Clinical Quality Measures (eCQM) Engine (Namespace ECQM) and additional support software needed.

ECQM is a browser-enabled graphical user interface (GUI) for the Indian Health Service (IHS) deployed either locally on-site application servers or centrally on an Albuquerque Data Center application server for calculating eCQM measures submitted by IHS sites. It provides functionality to import Quality Reporting Document Architecture Category I (QRDA I) files and generates QRDA Category III (QRDA III) files to submit for CMS reporting.

1.0 Release Notes

This is the eighth release of the centrally deployed eCQM Engine tool as defined by the following features:

Table 1-1: Feature IDs and titles

Feature ID	Title
99260	ECQM: Measure Analysis Report Enhancements for 2024
99257	ECQM: Measures Updates for 2024
99258	ECQM: Measure Compute Detail Report Updates for 2024
99255	ECQM: CQL Updates for 2024
99259	ECQM: QPP Submission for 2024
99254	ECQM: QRDA CAT-III Implementation Guide Updates for 2024
99419	ECQM: Diagnostic/Error Report Maintenance for 2024
99420	ECQM: ECQM Upload/performance enhancements for 2024
99355	eCQM: Address Accessibility and Usability Findings

2.0 Installation Notes

Prefix: ECQM

Current Version: 7.0

Table 2-1: Distributed files and descriptions

File	Description
ecqm0700.install.zip	eCQM Application bundle
ecqm0700_RavenDB.zip	eCQM RavenDB zipped bundle
ecqm.reference.2024 09-10.ravendbdump	RavenDB bundle
ecqm070i.pdf	eCQM v7.0 Installation Guide and Release Notes
ecqm070t.pdf	eCQM v7.0 Technical Manual
ecqm070u.pdf	eCQM v7.0 User Manual

2.1 Required Resources

This section lists the computer resources required for each deployment strategy.

2.1.1 Application Server Resources

The eCQM Engine software has two components: the eCQM Web Application and an eCQM database. For local site installations, these two components should be installed on one machine (single tier), which is described in this installation guide. For the centralized service deployment in the Albuquerque Data Center, two separate machines (multi-tier) are needed, for installation by the CSMT and eCQM Project Teams.

There are two potential configurations for the eCQM setup as follows:

- **BQRE/ECQM Local Install**—*Do not install* on the same server as BPRM. The ECQM Application (IIS) and Database (RavenDB) and BQRE can be installed on the same machine.
- **BQRE local/ECQM central option**—BQRE can be installed on the BPRM application server.

The following resources are required for both a single-tier and multi-tier application server:

- Microsoft® Windows® 2012 R2 Server x64 bit (or later)
- Microsoft IIS® 8.5 or 10
- Windows PowerShell 5.1 or higher
- .NET Framework 4.8 or higher (required for PowerShell 5.1)

- .NET Core 8.0
- Microsoft Visual C++ 2015-2019 x86
- Four processor cores running at 2.0 GHz or faster
- 8–12 GB RAM running at 1333 MHz (Multi-tier)
- 60–100 GB free disk space (disk drives should be 10K RPM or faster)

Note: Do not install on the same server as BPRM.

However, the ECQM Application (IIS) and Database (RavenDB) and BQRE Export Tool can be installed on *one* machine.

2.1.2 Browser Standard

The following browsers are recommended for any workstations accessing the eCQM application:

- Google Chrome® Version 68 or higher
- Mozilla Firefox
- Microsoft Edge

2.2 Before You Begin: Installation Issues

Internet connectivity on the application server is necessary to download the required installation items.

2.3 Prerequisites

Windows PowerShell 5.1 or Later

The RavenDB setup requires Windows PowerShell 5.1 or later.

Useful links on how to get PowerShell 5.1 can be found here:

- <https://docs.microsoft.com/en-us/powershell/scripting/install/installing-windows-powershell?view=powershell-5.1>
- <https://docs.microsoft.com/en-us/powershell/?view=powershell-5.1>

2.4 Microsoft .NET Framework Verification

As mentioned in Section 2.1.1, Microsoft .NET Framework 4.8 or higher is required on the ECQM application server. To determine if it is already installed:

1. From the Windows **Start** menu, select **Control Panel**.

2. Click **Programs and Features**. A listing similar to that shown in Figure 2-1 displays.

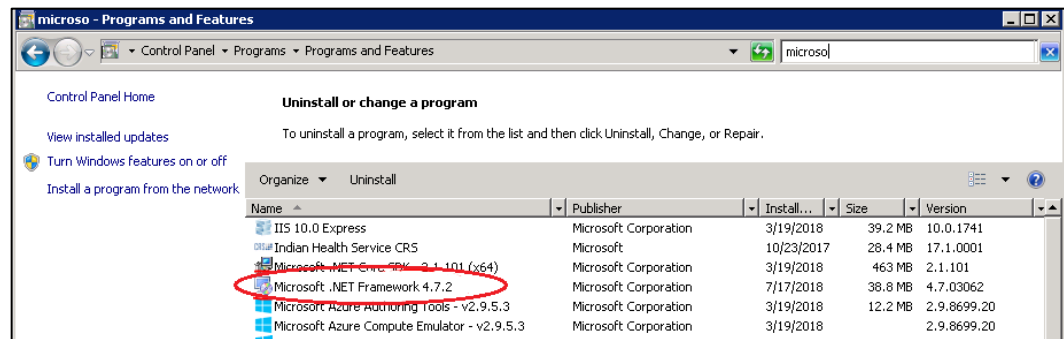


Figure 2-1: Programs and Features listing

3. Review the **listing**, looking for any **Microsoft .NET Framework 4.x** entries. If none are found, install the .NET Framework 4.8 (or higher) by following the instructions in Section 2.5. If Microsoft .NET Framework 4.8 (or higher) is listed, skip to Section 2.6.

Note: There can be more than one version of the .NET Framework on the server at the same time.

2.5 Microsoft .NET Framework 4.8 (or later) Installation

To install the .NET Framework:

1. Download .Net Framework 4.8 from the Microsoft download center at:

<https://go.microsoft.com/fwlink/?linkid=2088631>

2. Double-click the **downloaded file** to run the **.Net Framework 4.8 setup**. The **License Terms** dialog (Figure 2-2) displays:

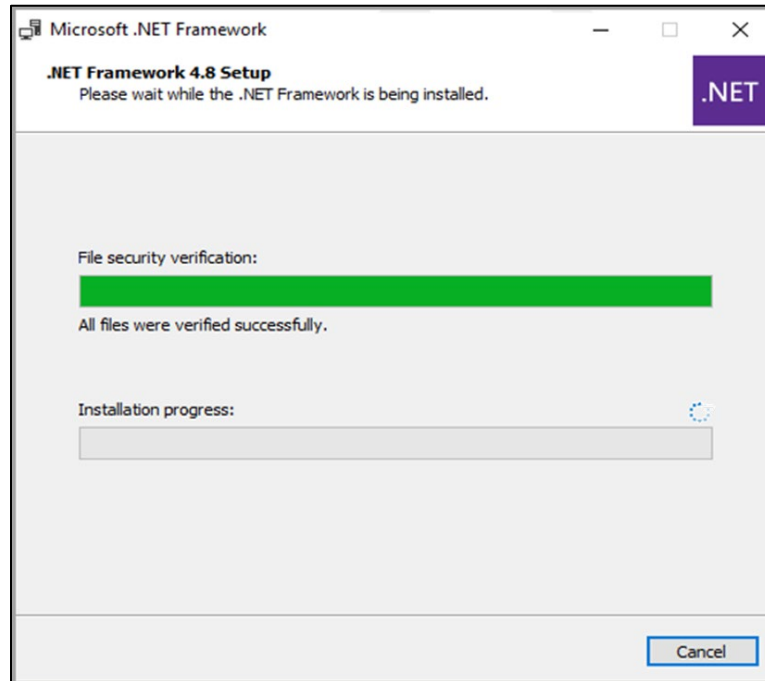


Figure 2-2: .NET Framework License Terms dialog

3. Select “**I have read and accept the license terms**” checkbox to accept the license agreement.
4. Click **Install**. Respond to any prompts presented as the installation proceeds. When completed, the **Installation Is Complete** dialog (Figure 2-3) displays.

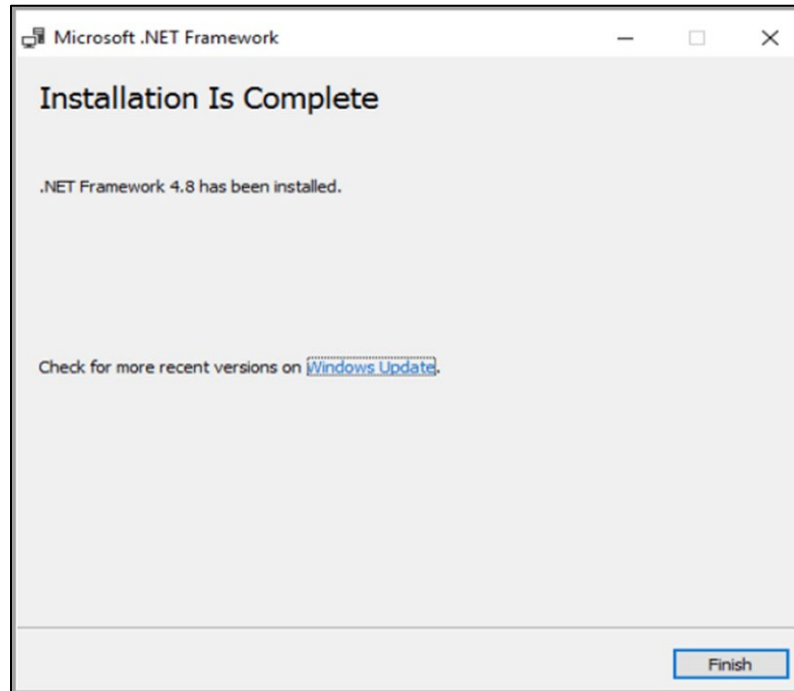


Figure 2-3: .NET Framework Installation Is Complete dialog

5. Click **Finish** to complete the installation. If necessary, restart the server.
6. As a final step, run the **Windows Updates utility** to check for and install any .NET Framework updates that may be available.

Note: It is very important to check for and install any .NET Framework updates. These updates can be critical to the stability and security of ECQM operation.

2.6 Internet Information Services 8.5 (or Later) Installation

To install the Microsoft IIS:

1. From the **Windows Start menu**, select **Administrative Tools**.
2. Select **Server Manager** to display the **Server Manager** dialog.

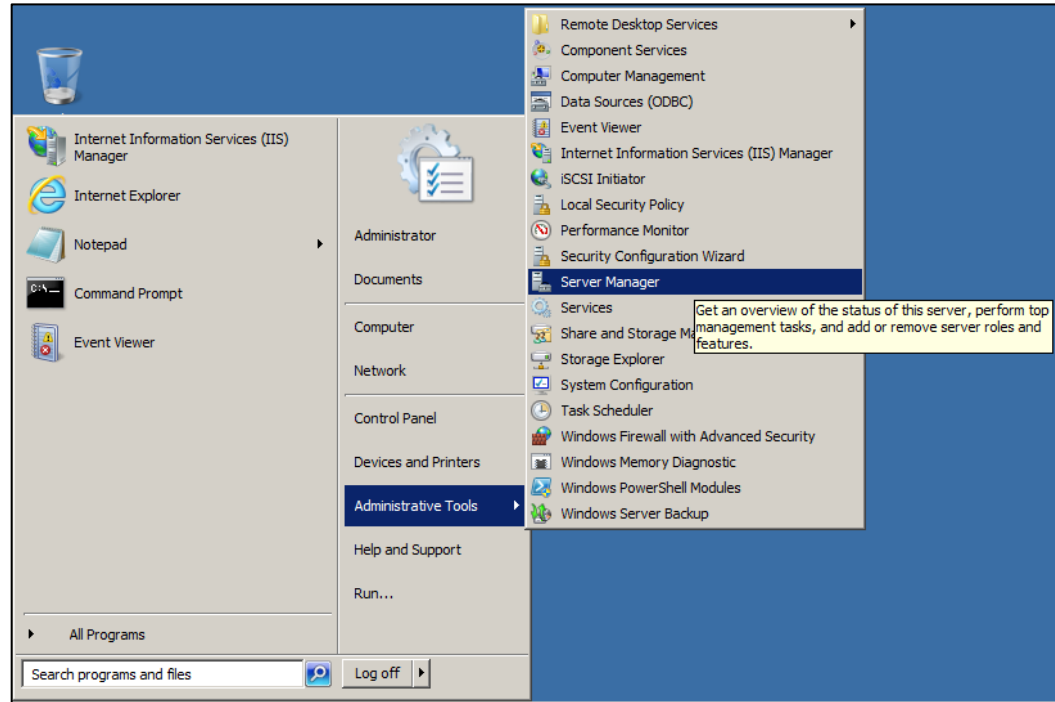


Figure 2-4: Open Server Manager applet

3. Click **Roles** in the left pane. The **Roles** pane (Figure 2-5) displays.

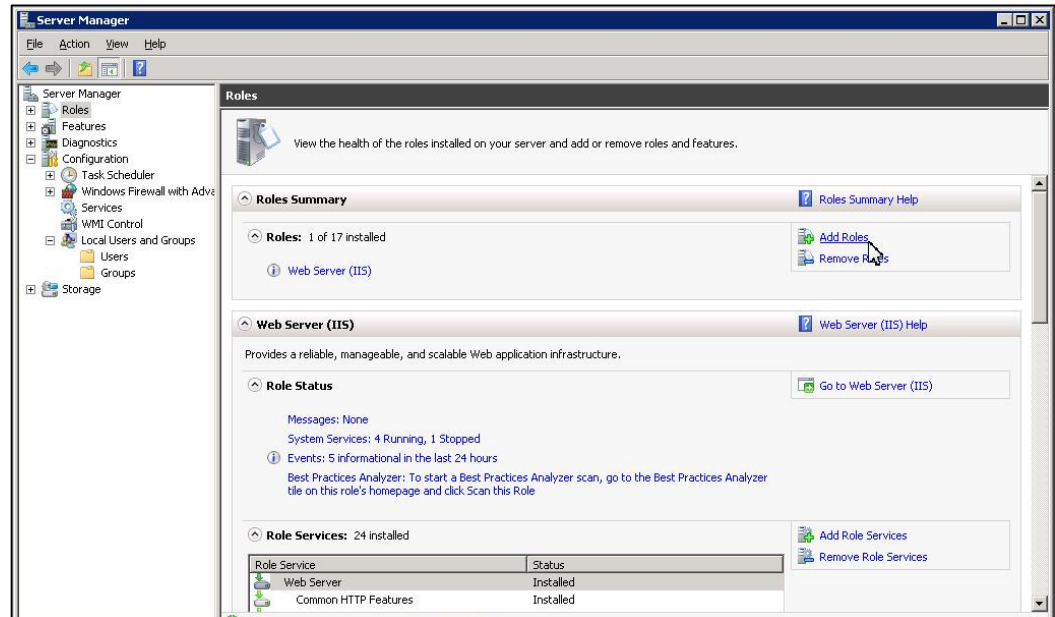


Figure 2-5: Add Roles dialog

4. If a Web server has already been set up, click **Select Roles**, and skip to Step 7.

5. If a Web server has not been set up, click **Add Roles** on the right pane. Review the **Before You Begin** dialog and click **Next**.
6. The **Select Server Roles** dialog (Figure 2-6) displays.

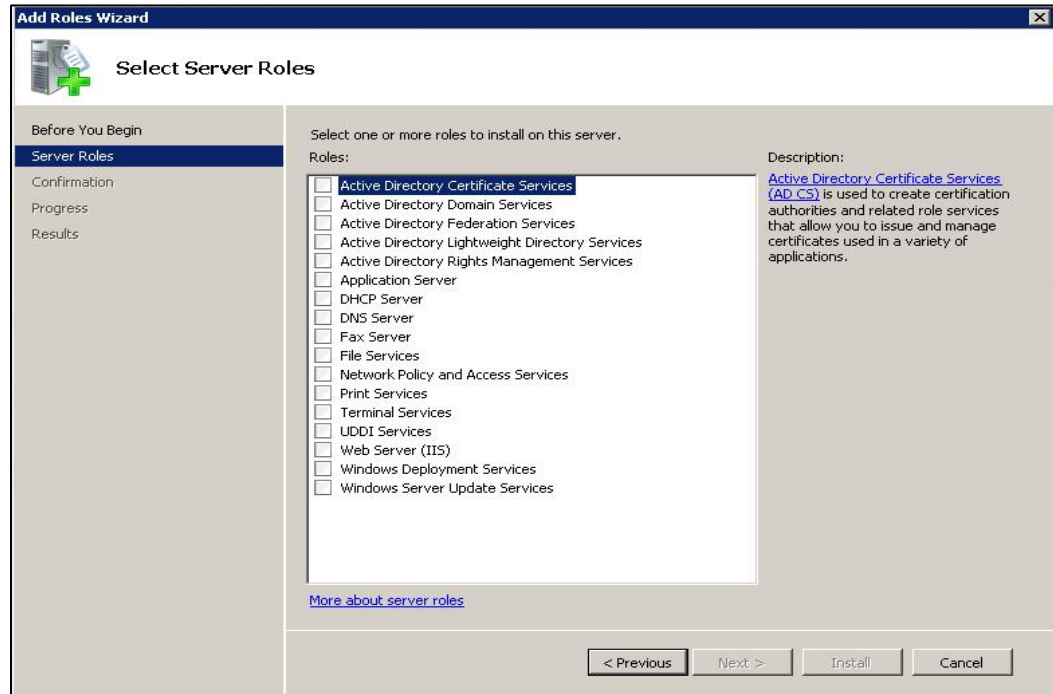


Figure 2-6: Select Server Roles dialog

7. Select **Web Server (IIS)**. The **Add Roles Wizard** (Figure 2-7) displays.



Figure 2-7: Add Roles Wizard

8. Click **Add Required Features**. The **Web Server (IIS)** dialog (Figure 2-8) displays.



Figure 2-8: Add Roles Wizard Web Server (IIS) dialog

9. Click **Next**. The **Select Role Services** dialog (Figure 2-9) displays.

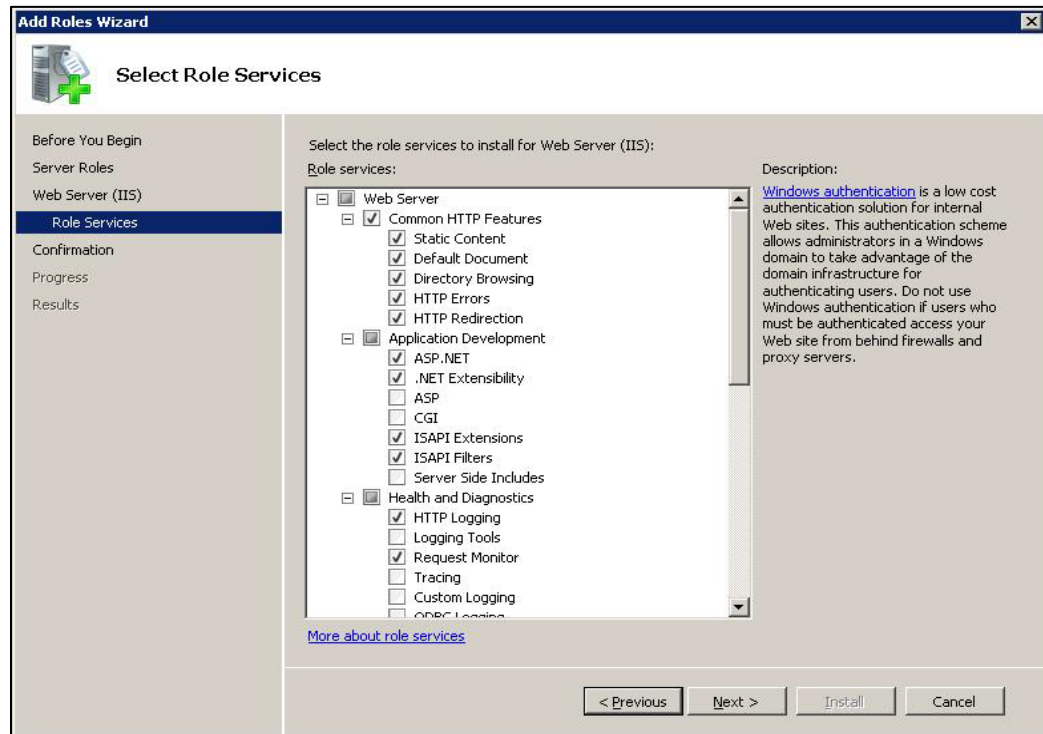


Figure 2-9: Add Roles Wizard Select Role Services dialog

10. Clear any checked boxes and enable the following role services:

- **Common HTTP Features:**
 - Static Content
 - Default Document
 - Directory Browsing
 - HTTP Errors
 - HTTP Redirection
- **Application Development:**
 - ASP.NET
 - .NET Extensibility
 - ISAPI Extensions
 - ISAPI Filters
- **Health and Diagnostics (optional):**
 - HTTP Logging
 - Request Monitor
- **Security:**
 - Request Filtering
- **Performance:**
 - Static Content Compression
 - Dynamic Content Compression
- **Management Tools:**
 - IIS Management Console
 - IIS 6 Metabase Compatibility

11. Click **Next** to display the **Confirm Installation Selections** dialog (Figure 2-10).

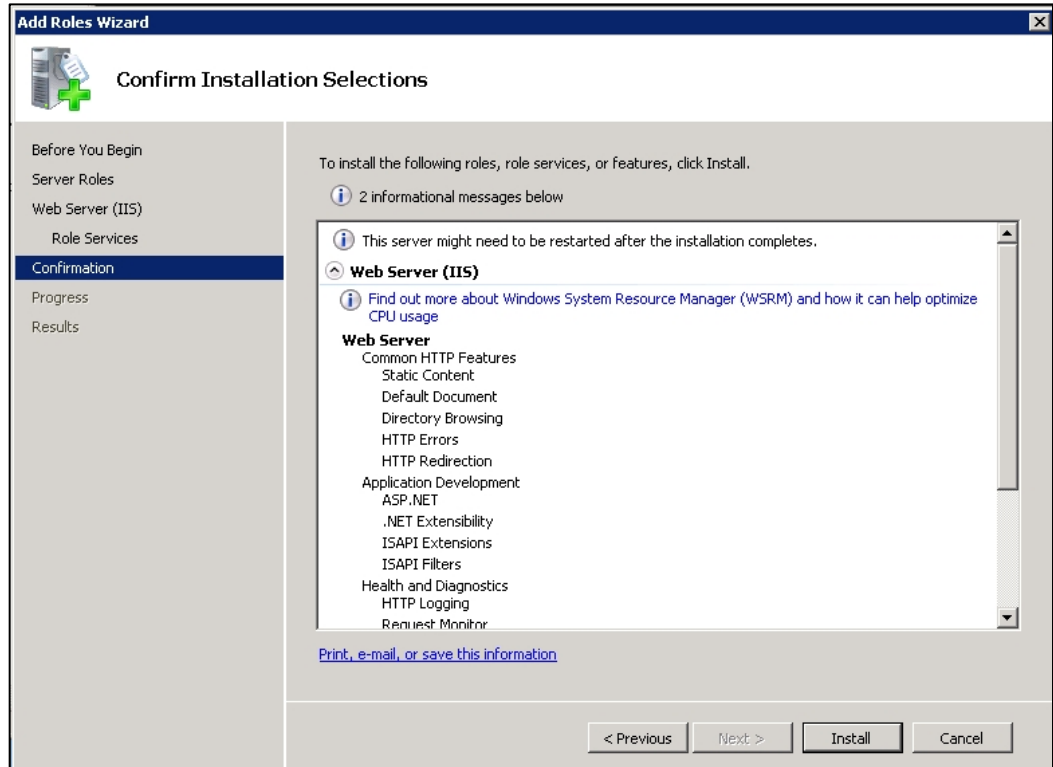


Figure 2-10: Add Roles Wizard Confirm Installation Selections dialog

12. Click **Install**. The **Installation Results** dialog (Figure 2-11) displays.

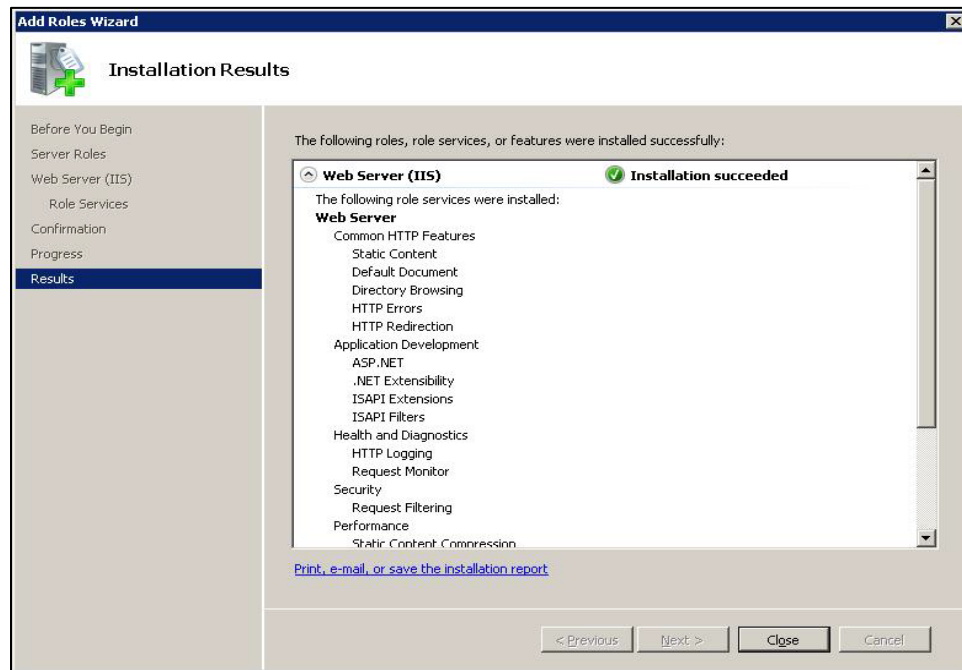


Figure 2-11: Add Roles Wizard Installation Results dialog

13. Click **Close** to complete the installation and end the process.

Note: Review the additional steps for disabling the IIS Manager Logging feature in Appendix A .

2.7 .Net Core 8.0.8 Hosting Bundle

The ECQM application requires .Net Core 8.0.8 hosting bundle. To install:

1. Download the **.Net Core Runtime** installer from <https://dotnet.microsoft.com/en-us/download/dotnet/thank-you/runtime-aspnetcore-8.0.8-windows-hosting-bundle-installer>
2. Run the installer (preferably in administrator mode).
3. Click **Install**.

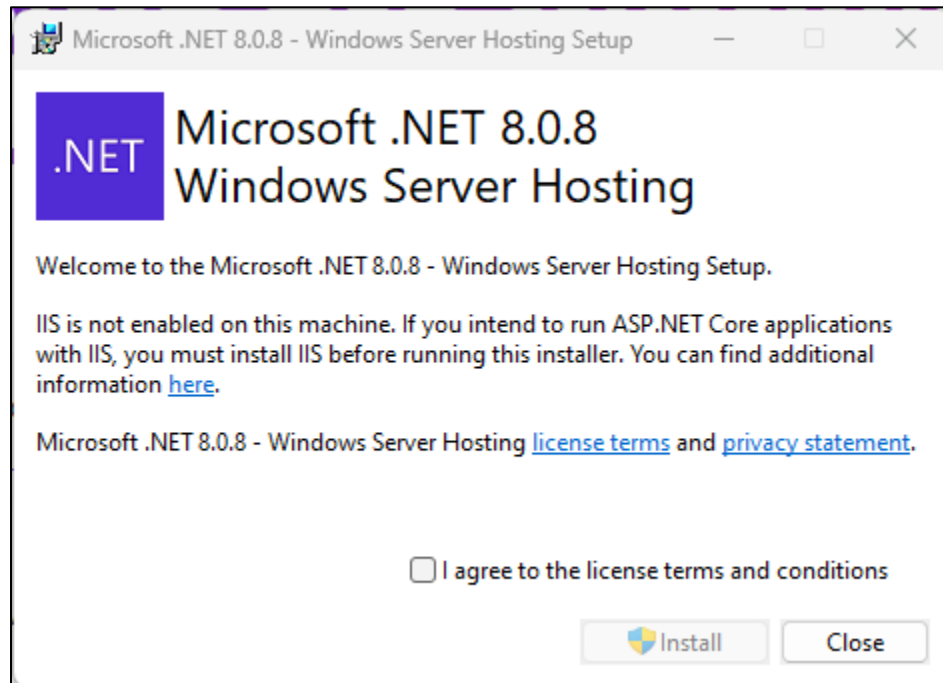


Figure 2-12: Microsoft .NET Core 8.0.8–Windows Server Hosting Setup

4. Click **Close** after installation is successfully completed.

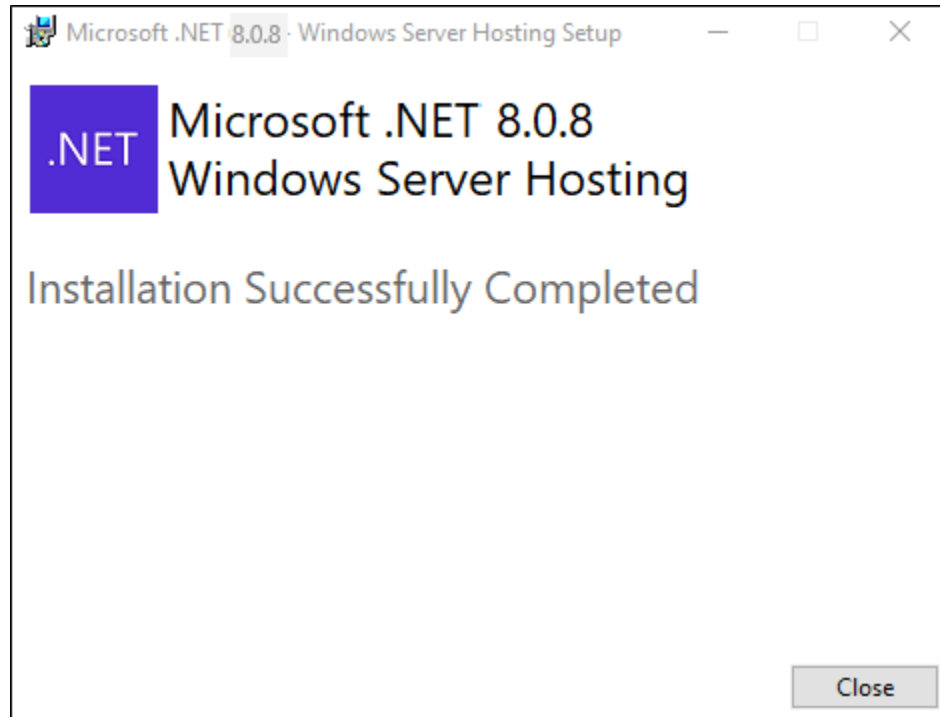


Figure 2-13: Successful installation

5. After successful installation, restart the **WWW** and **WPA** services as described in the following steps.
6. To open the Command Prompt CMD in Administrator mode, right-click the **Command Prompt** and select **Run as administrator**.

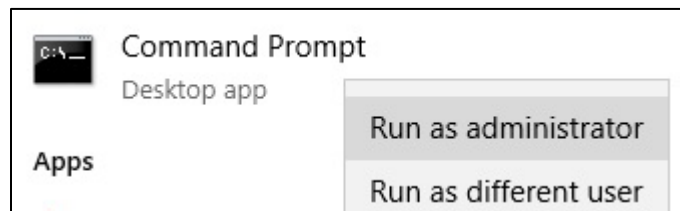
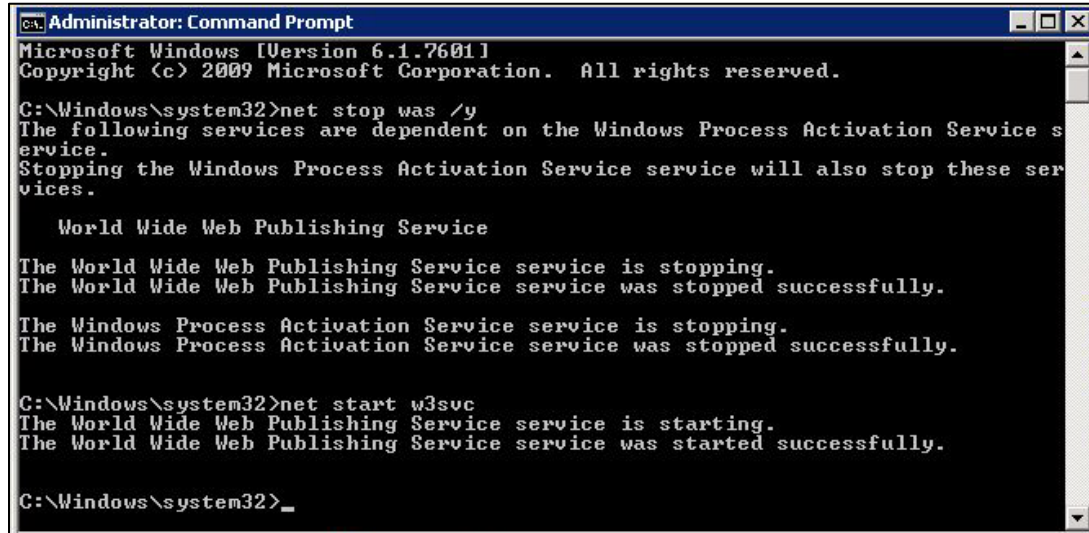


Figure 2-14: Run as administrator

7. Run the following commands in CMD:
 - **net stop was /y**–This will *stop* the WWW and Windows Process Activation service.
 - **net start w3svc**–This will *start* the WWW service.



```
C:\Windows\system32>net stop was /y
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

The following services are dependent on the Windows Process Activation Service s
ervice.
Stopping the Windows Process Activation Service service will also stop these ser
vices.

    World Wide Web Publishing Service

The World Wide Web Publishing Service service is stopping.
The World Wide Web Publishing Service service was stopped successfully.

The Windows Process Activation Service service is stopping.
The Windows Process Activation Service service was stopped successfully.

C:\Windows\system32>net start w3svc
The World Wide Web Publishing Service service is starting.
The World Wide Web Publishing Service service was started successfully.

C:\Windows\system32>_
```

Figure 2-15: Administrator Command prompt screen

3.0 Installation Overview

The ECQM v7.0 installation requires three files:

1. **ecqm0700.install.zip**—Application bundle
2. **ecqm0700_RavenDB.zip**—Database bundle for eCQM application
3. **ecqm.reference.2024 09-10.ravendbdump**—RavenDB bundle

Save these files where accessible to the application server.

4.0 Installation Instructions: First-Time Install

ECQM contains components that run on the application server. The application operates in a Web-based environment; there is no separate installation necessary on user workstations.

Note: If site already have a previous version of ECQM installed please skip this and go to the Step 5.0.

4.1 Acquire the SSL Certificate

ECQM utilizes the Secure Sockets Layer (SSL) protocol to ensure secure communications between its components. If your site is not on a secure domain, you must acquire an SSL certificate. If your site is on a secure domain, an SSL certificate may not be required but is still highly recommended.

Note: Since the SSL certificate acquisition may take up to 24 hours, it is recommended that you acquire the SSL certificate before beginning the ECQM installation.

The process for acquiring this certificate for sites on the IHS domain is different than that used by sites that are not on the IHS domain.

4.1.1 SSL Certificate Acquisition–IHS Domain

If your site is on the IHS domain, to acquire your SSL certificate:

1. Click **Start | Administrative Tools | Internet Information Services (IIS) Manager**.
2. Click the **server name**. The **IIS Manager** dialog (Figure 4-1) displays.

3. In the center panel, double-click **Server Certificates** in the **Security** section (near the bottom of the panel).

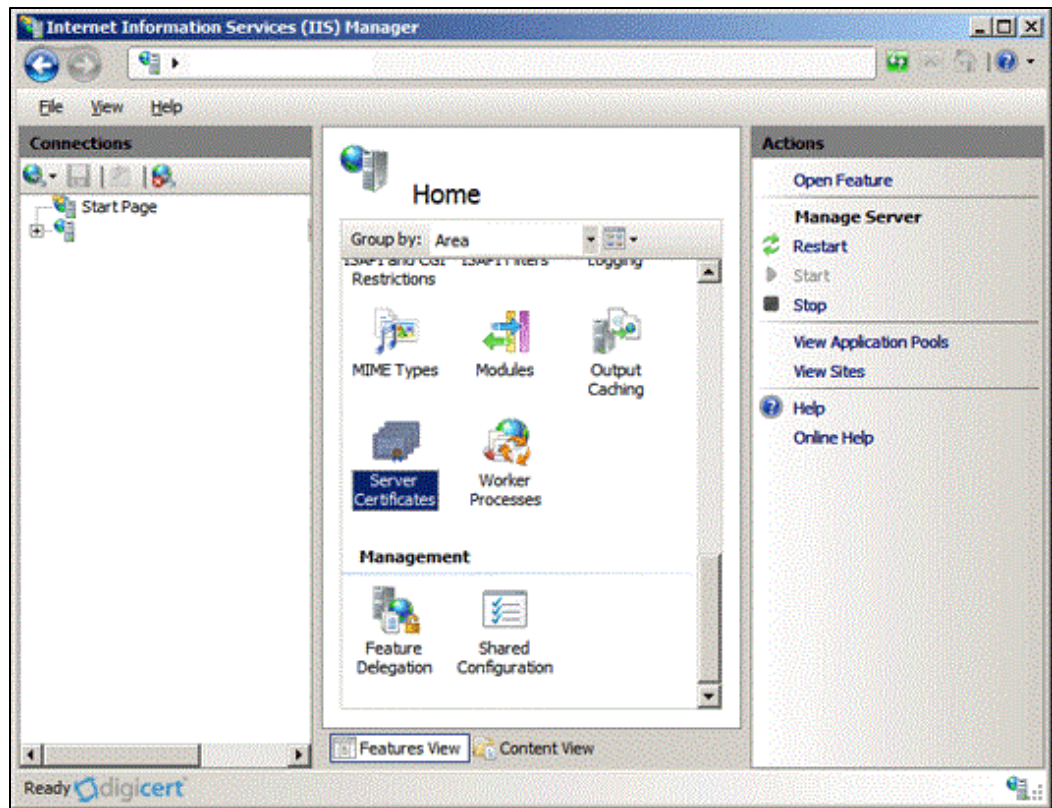


Figure 4-1: Internet Information Services (IIS) Manager

4. In the **Actions** panel (on the right), click **Create Certificate Request** (Figure 4-2).

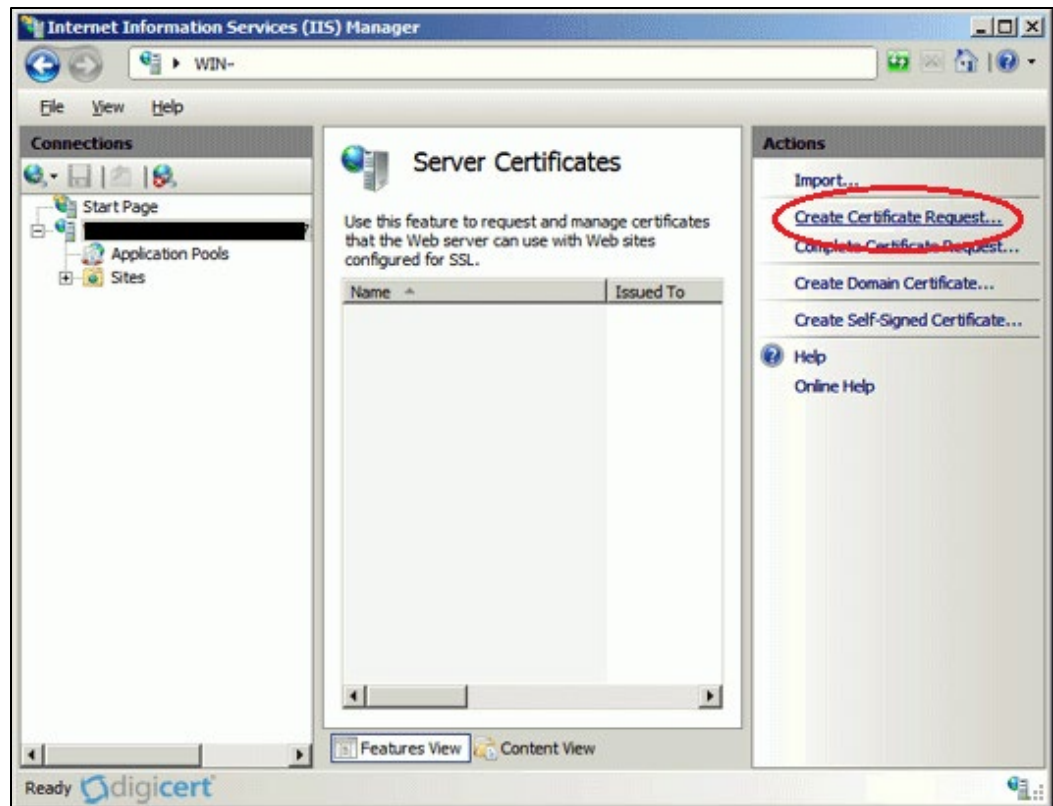
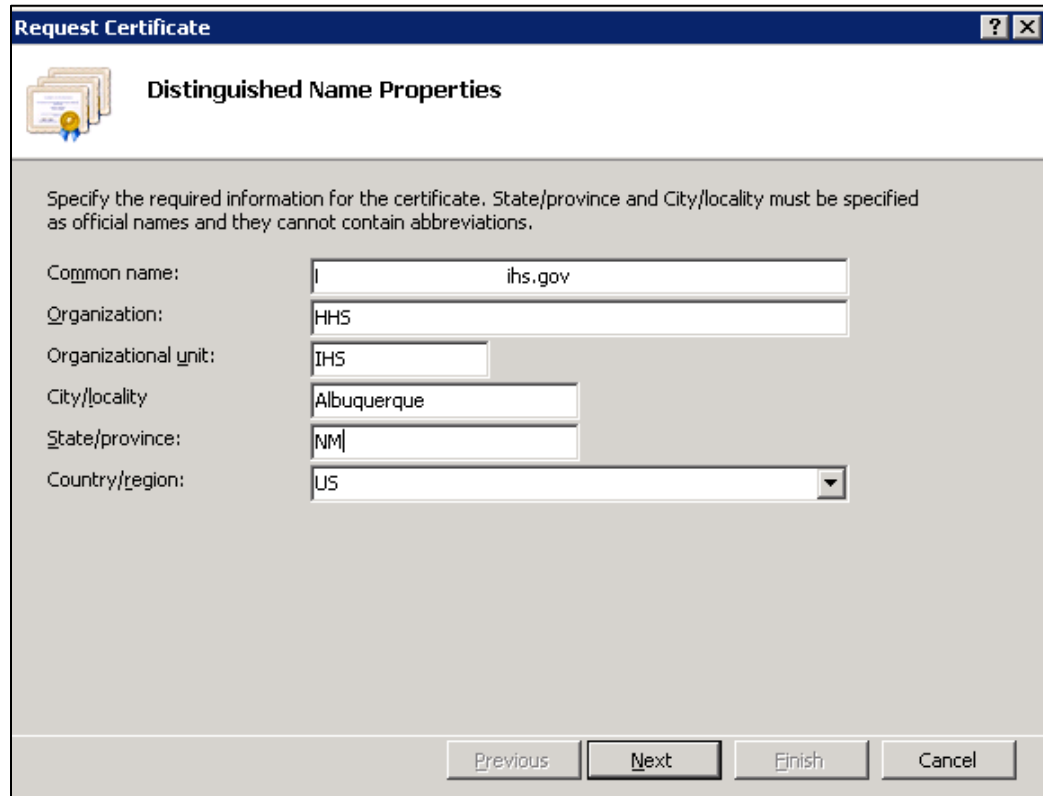


Figure 4-2: Internet Information Services (IIS) manager–Server Certificates

5. The **Request Certificate Wizard** displays.
6. In the **Distinguished Name Properties** dialog, enter the information as follows:
 - **Common Name.** The name through which the certificate will be accessed (usually the fully qualified domain name of the machine).
 - **Organization.** The legally registered name of your organization or company.
 - **Organizational unit.** The name of your department within the organization (e.g., IHS).
 - **City/locality.** The city in which your organization is located.
 - **State/province.** The state in which your organization is located.
 - **Country/region.** The two-character Country code.



The screenshot shows a Windows-style dialog box titled "Request Certificate" with a subtitle "Distinguished Name Properties". The dialog contains a text area with instructions: "Specify the required information for the certificate. State/province and City/locality must be specified as official names and they cannot contain abbreviations." Below this are several input fields: "Common name:" with "ihs.gov", "Organization:" with "HHS", "Organizational unit:" with "IHS", "City/locality:" with "Albuquerque", "State/province:" with "NM", and "Country/region:" with a dropdown menu showing "US". At the bottom are four buttons: "Previous", "Next", "Finish", and "Cancel".

Figure 4-3: Request Certificate Wizard–Distinguished Name Properties

7. Click **Next**. The **Cryptographic Service Provider Properties** dialog (Figure 4-4) displays.

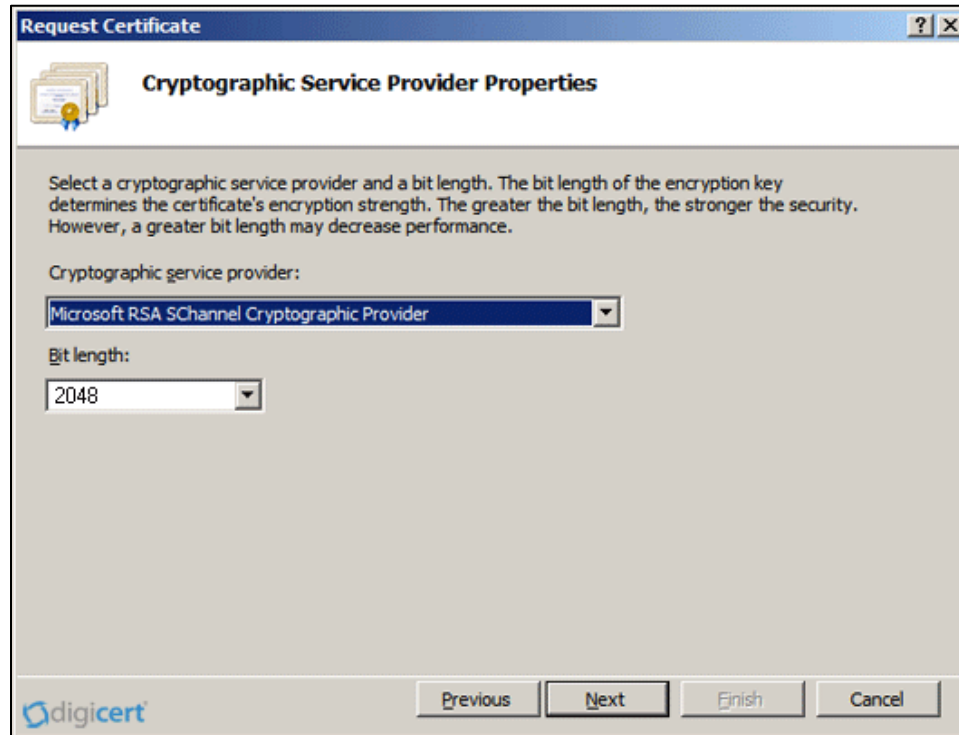


Figure 4-4: Request Certificate Wizard–Cryptographic Service Provider Properties

8. Leave both settings at their defaults:
 - **Cryptographic service provider: Microsoft RSA SChannel Cryptographic Provider.**
 - **Bit length: 2048.**
9. Click **Next**. The **File Name** dialog (Figure 4-5) displays.

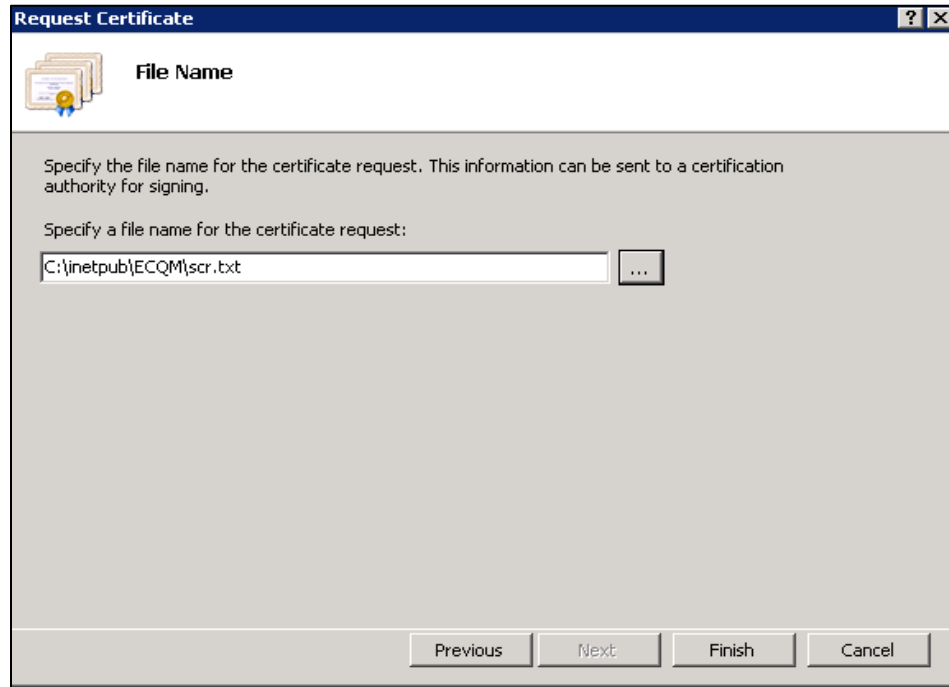


Figure 4-5: Request Certificate–File Name dialog

10. Type a path and file name for the certificate request file.

Note: Make note of the chosen file name and the save location. You will need to open this file as a text file and copy the entire body of it (including the Begin Certificate Request and End Certificate Request tags) into the online order process when prompted.

11. Click **Finish** to save the SSL certificate request file.
12. Contact the IHS IT Service Desk to request the SSL Certificate in CER format for the ECQM Application. A certificate will be issued and e-mailed to the originator of the request. Once the certificate is received, proceed with the ECQM installation as described in Section 5.0 through Section 6.0.

4.1.2 SSL Certificate Acquisition–Non-IHS Domain

If the site is not on the IHS domain, the steps for acquiring an SSL certificate will vary, depending on the certificate provider. Several vendors (e.g., GoDaddy, Thawte, and Verisign) provide SSL certificates, and the process for acquiring the certificate is different for each.

Follow the steps provided by the SSL certificate vendor to acquire an SSL certificate and proceed to the ECQM installation instructions.

5.0 ECQM Application Server Installation and Configuration

5.1 Set up RavenDB

ECQM application requires RavenDB to store data.

5.1.1 Prerequisites

- **Windows PowerShell 5.1** or later is required by the RavenDB setup. This step is discussed in detail in Section 2.3.
- **Visual C++ 2015 x64** is required to complete the setup for the CqmReference database in Section 5.1.8.

5.1.2 Upgrade Existing RavenDB

If an earlier version of ECQM is installed and RavenDB already exists, follow these steps:

1. Go to **Windows Services** and stop the **RavenDB** Windows service.
2. Navigate to the **RavenDB** folder.
3. Ensure you do **not delete** your actual data, which is contained in folders like **RavenData**.
4. Navigate to the **Server** folder.
5. Delete everything from the **Server** folder except the following files:
 - settings.json
 - settings.default.json
 - license.json
6. Do not overwrite or delete configuration files like settings.json.
7. Do not delete your certificate files (ending with **.pfx** or **.pem**).
8. If you have a license.json file:
 - Open the file and copy its content.
 - Visit [RavenDB License Upgrade](#) and paste the content in the **Upgrade License** box.
 - Click **Upgrade License**.

- Once the license is upgraded, copy the new content and replace it in your license.json file.
9. Extract the ecqm0700_RavenDB.zip file.
 - Go to the extracted **server** folder and copy all its content to your **Server** folder.
 - Ensure you do not overwrite any **settings**, **license**, or **certificate** files.
 10. Restart the **RavenDB** service from **Windows Services**.

5.1.3 Existing RavenDB Backup

If the site has an earlier version on ECQM locally installed, it is recommended to take backups of the following databases:

1. *ecqm.identity* (contains user settings)
2. *ecqm.config* (contains site and teams' settings)

Please ignore these steps if the site prefers to register site, teams, and users from scratch.

Use the followings steps to take backups of each database:

1. Open the **RavenDB portal** in Chrome using the URL <http://127.0.0.1:27019>.
 - a. Some sites may have a custom port (i.e., 27018) for the RavenDB.
2. Select **Databases** from the left menu.
3. Select database **ecqm.config**.
4. Click the **Tasks** icon on the left panel.
5. Click on the Tasks icon on the left menu.

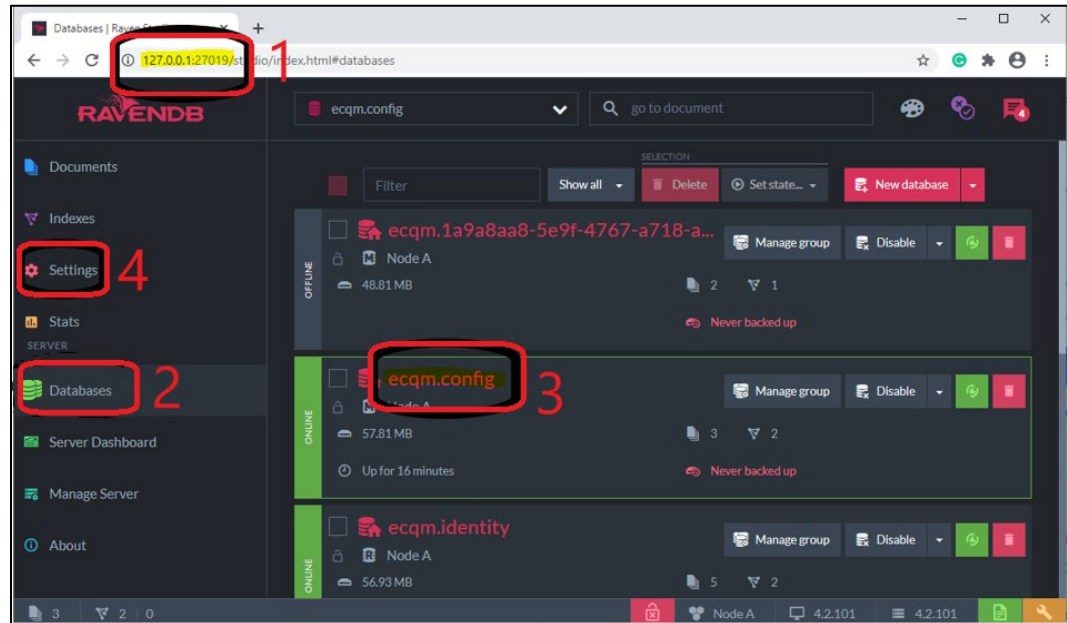


Figure 5-1: Creating backups of the database

6. Click **Export Database**.
7. User must click on 'Export Database' button at the bottom and then the Windows File directory (dialog) is shown.

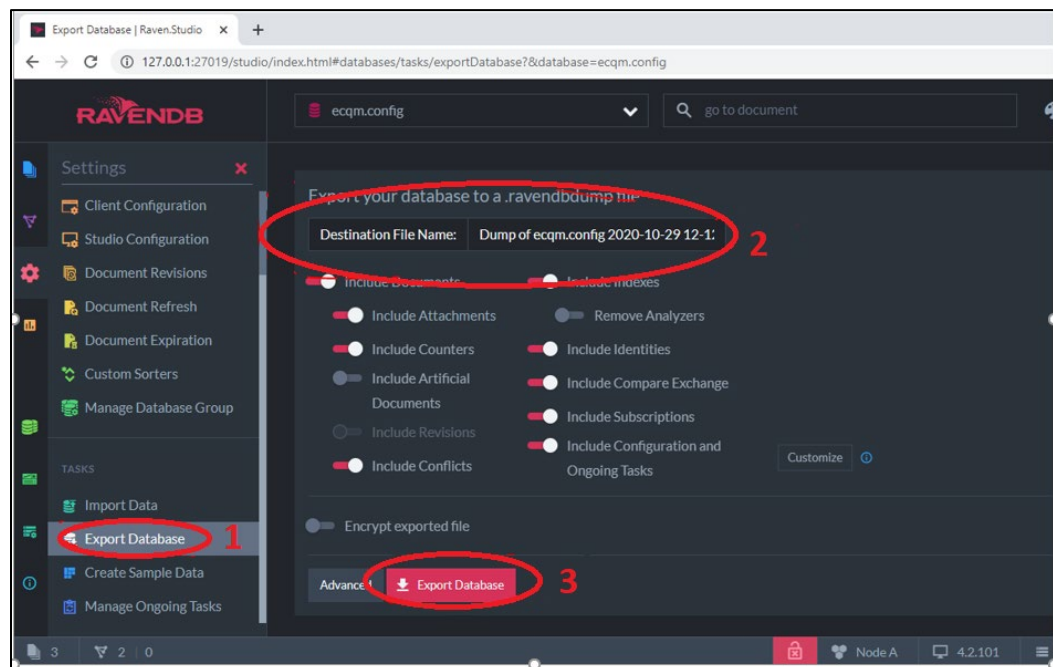


Figure 5-2: Exporting the database

8. Repeat the same steps for **ecqm.identity** database.

5.1.4 Create and Load Directory

1. Create a directory named **RavenDB**, preferably **C:\RavenDB**, to unzip the downloaded RavenDB zip package.
2. Unzip the downloaded **ecqm0700_RavenDB.zip** into the folder created in previous step.

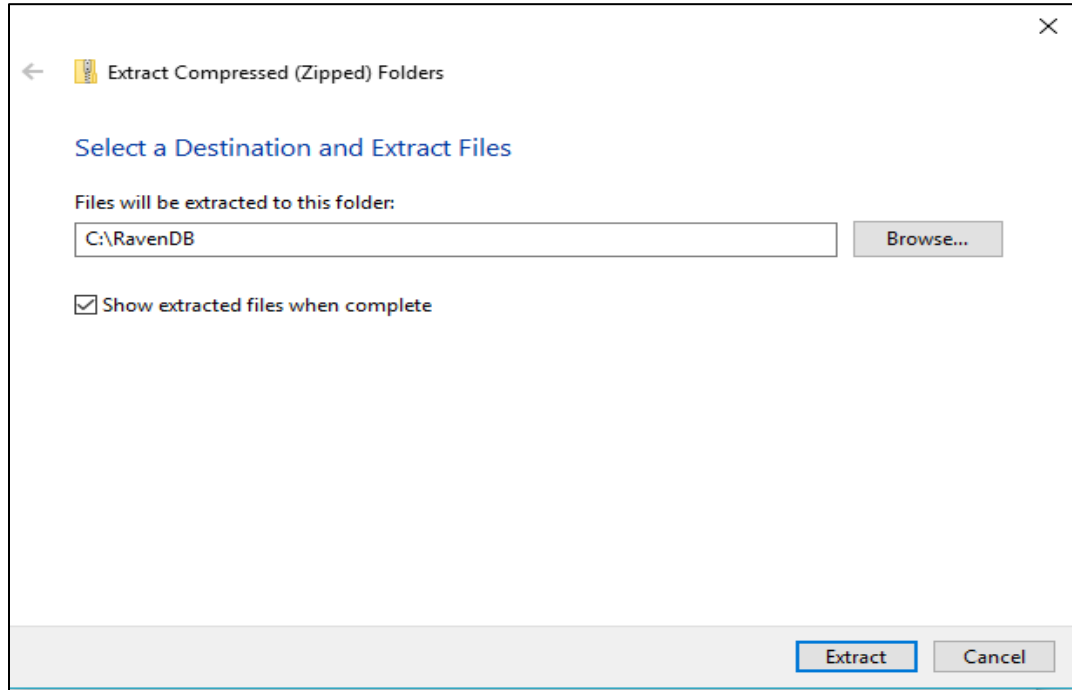


Figure 5-3: Creating a directory to unzip file

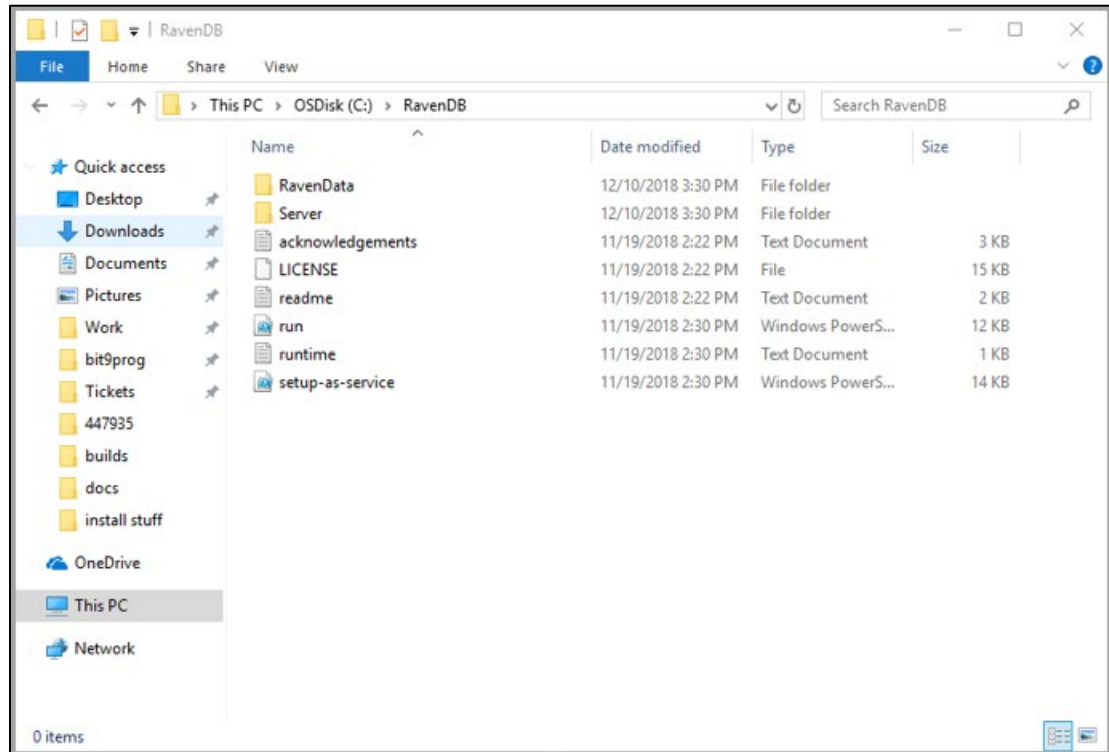


Figure 5-4: File location

3. Make sure the **LOCAL SERVICE** account has full access on **RavenDB** folder (Figure 5-5).

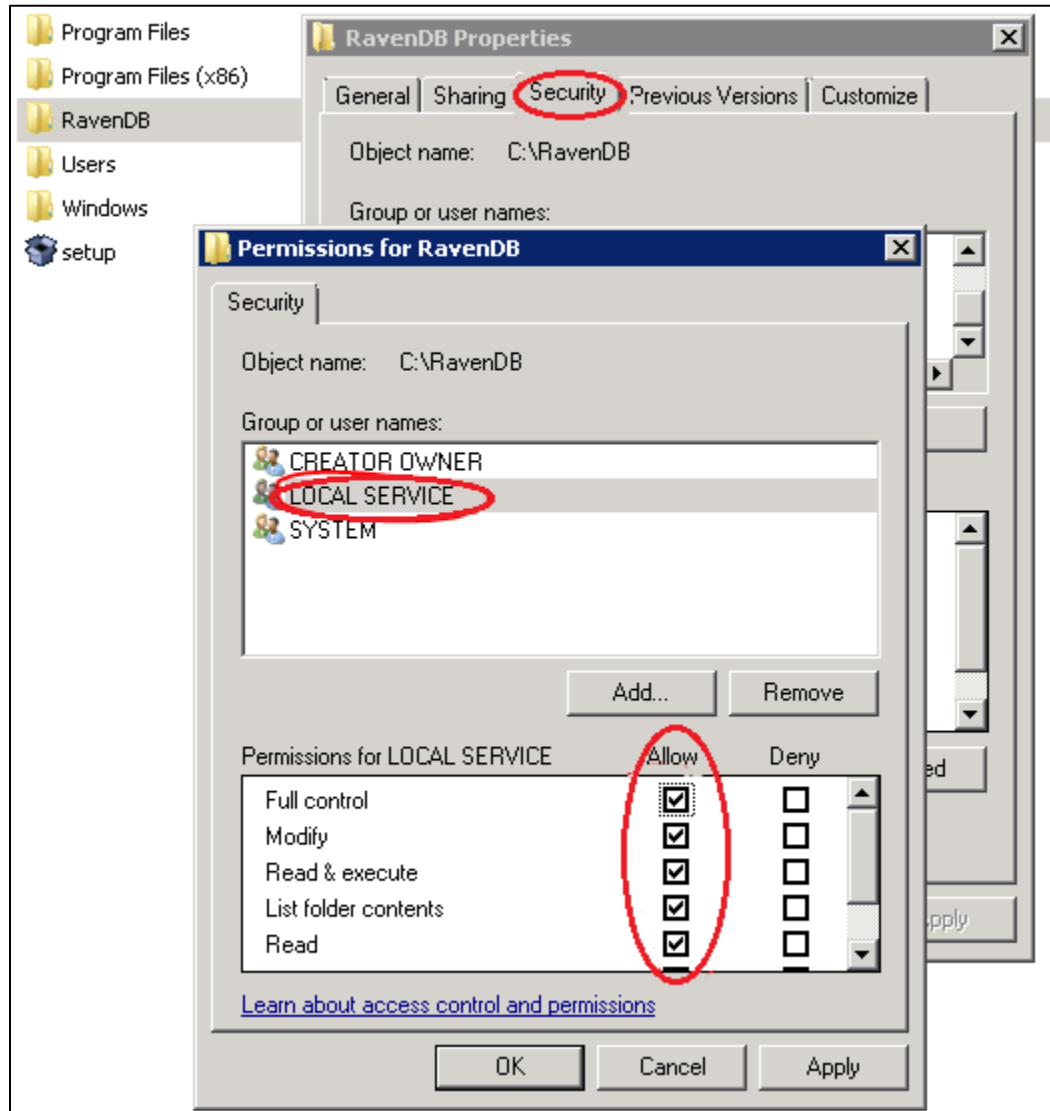


Figure 5-5: Permission settings

5.1.5 Set up RavenDB as a Service

This process requires Windows PowerShell 5.1 or later. Refer to Section 2.3 for guidance.

1. Once PowerShell 5.1 or later has been installed, open **PowerShell** in administrator mode.

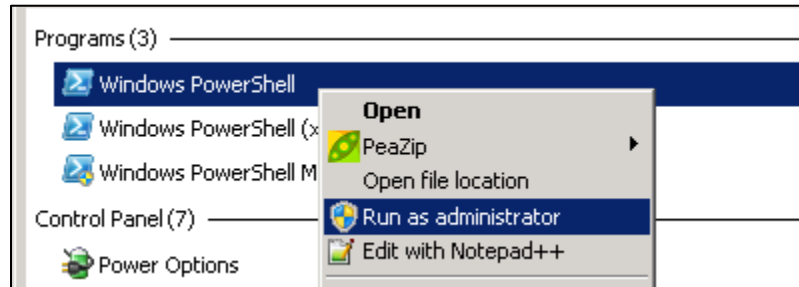


Figure 5-6: Administrator Mode

2. Use the command `$PSVersionTable` to confirm the PowerShell version is 5.1.x.
3. Using the `cd C:\RavenDB\` command, set the directory where the RavenDB zip package is unzipped.

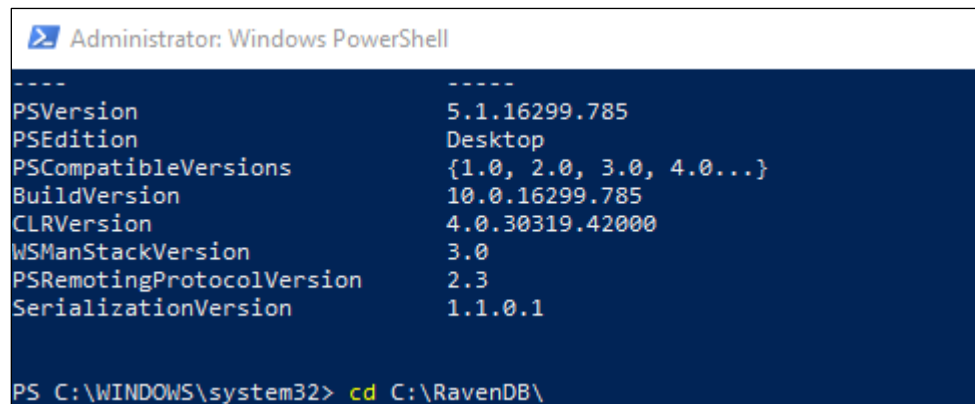


Figure 5-7: Setting the directory

4. Set PowerShell execution policy to **Unrestricted**. Run the command `Set-ExecutionPolicy unrestricted`.
5. Type **A** at the next prompt.

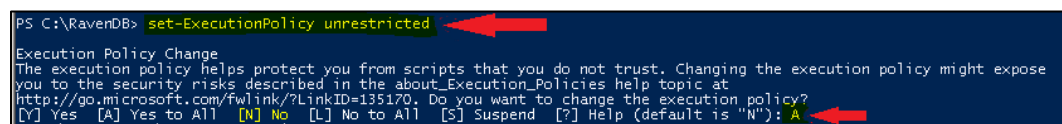


Figure 5-8: Set PowerShell execution policy to Unrestricted

6. Run the command `.\setup-as-service.ps1`.

```
PS C:\RavenDb> .\setup-as-service.ps1
Server was run before - attempt to use existing configuration.
Service "RavenDB (Next generation NoSQL Database)" has been registered.
Service started, server listening on http://127.0.0.1:27019.
You can now finish setting up the RavenDB service in the browser.
PS C:\RavenDb> _
```

Figure 5-9: .\setup-as-service.ps1 command

7. Note the URL for RavenDB: <http://127.0.0.1:27019>.
8. Set PowerShell execution policy to **Restricted**. Run the command **Set-ExecutionPolicy Restricted**.
9. Type **A** at the next prompt.

```
PS C:\RavenDB> set-ExecutionPolicy Restricted
Execution Policy Change
The execution policy helps protect you from scripts that you do not trust. Changing the execution policy might expose you to the security risks described in the about_Execution_Policies help topic at http://go.microsoft.com/fwlink/?LinkID=135170. Do you want to change the execution policy?
[Y] Yes [A] Yes to All [N] No [L] No to All [S] Suspend [?] Help (default is "N"): A
```

Figure 5-10: Set PowerShell execution policy to Restricted

5.1.6 Verify RavenDB Version

This process is to make sure that RavenDB is installed for the required version.

1. Open **RavenDB portal** in Chrome using the URL <http://127.0.0.1:27019>.
2. Verify the **RavenDB** version on right bottom corner of browser; version should be **6.2.xxx**.

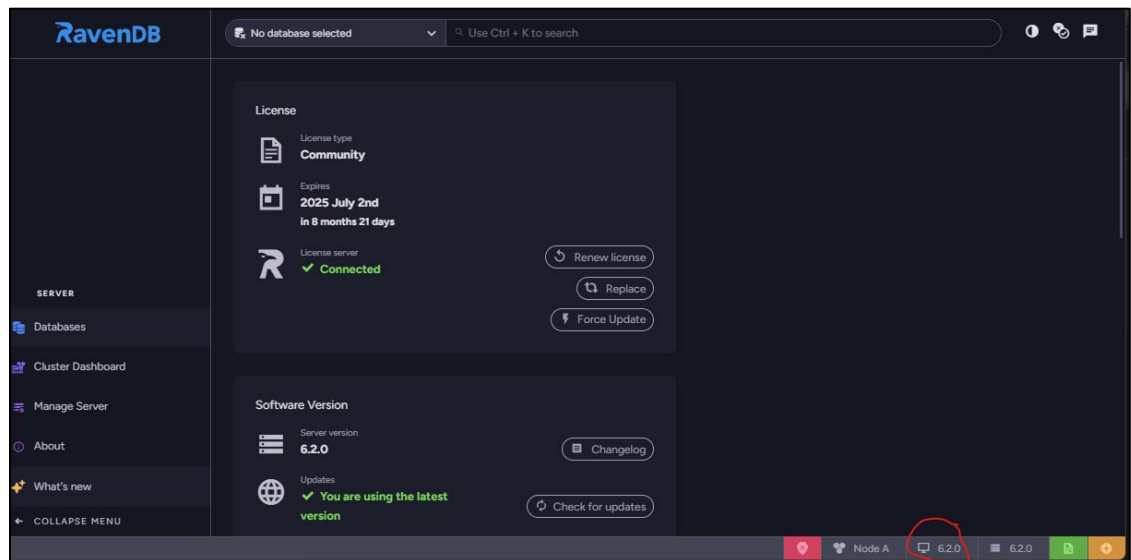


Figure 5-11: RavenDB Version

5.1.7 Register RavenDB License (If Expired)

Warning: In the RavenDB studio, on the right bottom corner, the user should be able to see the registration status. If the license is expired, use the following steps.



Figure 5-12: Register license dialog—expired license notice

1. Go to the **RavenDB Web site** using the URL <https://ravendb.net/license/request/community>.
2. Fill in the **form** using the organization Email address and submit the information. RavenDB will provide the license key via the provided Email address.
3. **Activate using License Key:**
 - a. Open **RavenDB portal** in Chrome using the URL <http://127.0.0.1:27019>.
 - b. Go to the **License Information** tab in the **RavenDB studio**.
 - c. Click the **Register License** button.
 - d. Paste your **License Key** inside the textbox.

- e. Click **Submit**.
- f. In the **RavenDB Studio**, on the bottom-right corner, you should be able to see the registration status.

5.1.8 Set up ecqm.reference.2024 Database

1. Open RavenDB portal in Chrome using the URL <http://127.0.0.1:27019>.
2. Delete the **Database** named **ecqm.reference.2024** if exists.
3. Select **Databases** from the left menu and click **New Database**.
4. Type database name **ecqm.reference.2024** and click the **Create** button.

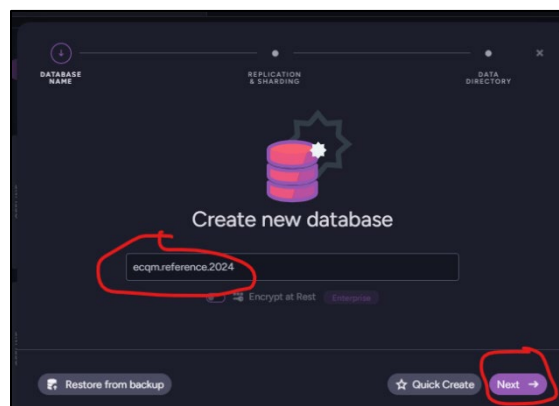


Figure 5-13: Naming and creating the database

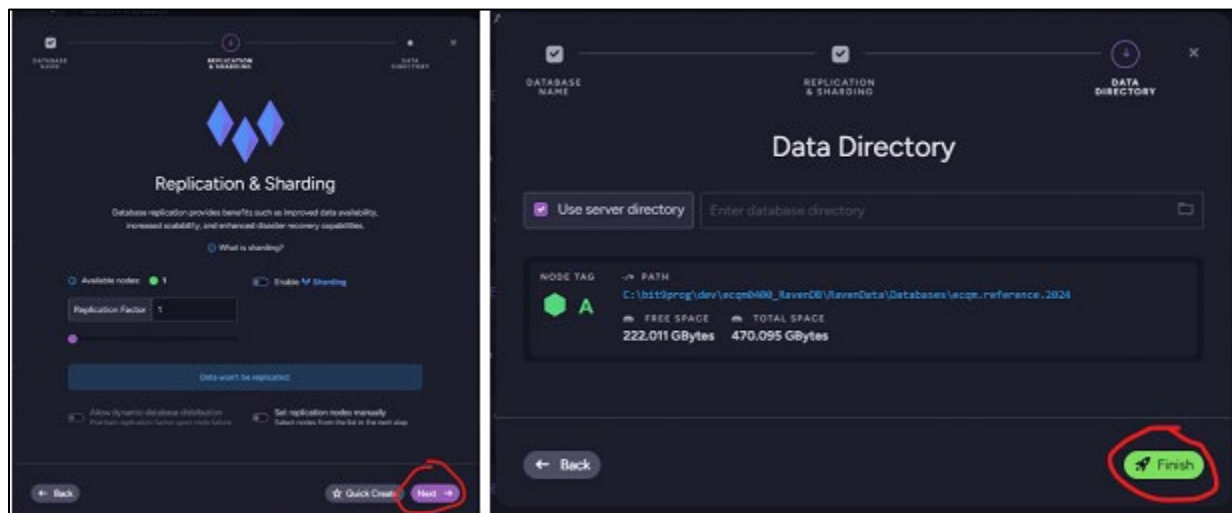


Figure 5-14: Replication & Sharding and Data Directory windows

5. Once the database is created, it will display the **ecqm.reference.2024** database information.

6. Select the **ecqm.reference.2024** database. Click the **Tasks** button on the left pane and then select **Import Data** button.

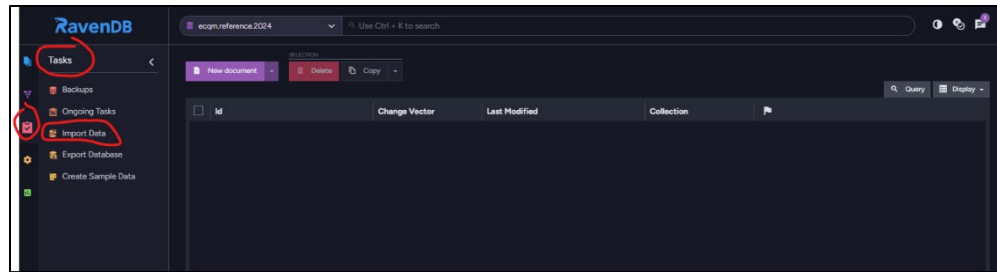


Figure 5-15: Import Data dialog

7. Click the **Browse** button on the **Import Data** screen and select the **ecqm.reference.2024 09-10.ravendbdump** file found in the **ecqm0700** unzipped folder.

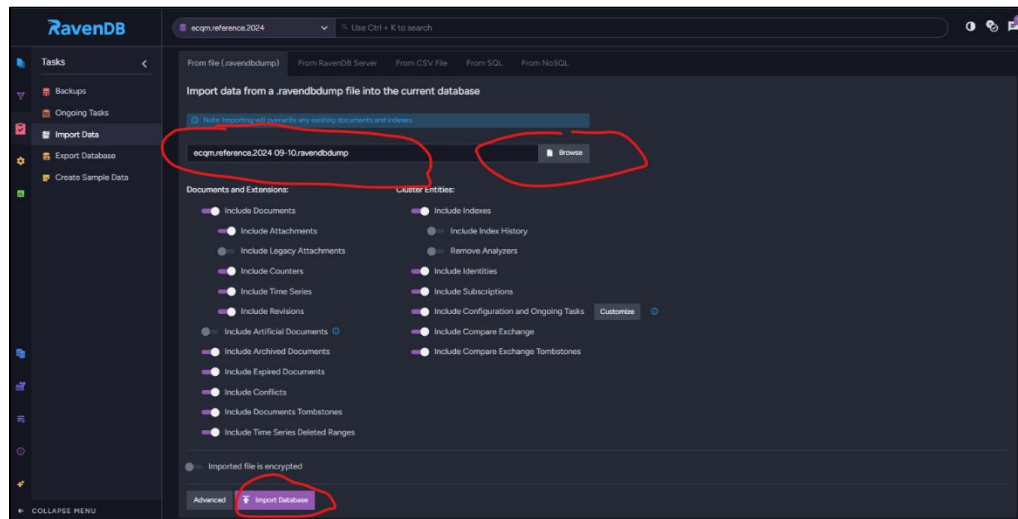


Figure 5-16: Import Database dialog.

8. Click the **Import Database** button as show in Figure 5-16.
9. The below 'Database Import' dialog is displayed during the Import process > User must click on 'Close' button upon completion.

Database import
December 3, 2024 2:09 PM
Time elapsed: 00:00:01

	STATUS	READ	SKIPPED	ERRORS
Database Record	✓ Processed	1	-	0
Documents	✓ Processed	35,188	0	0
Attachments	✓ Processed	0	-	0
Counters	✓ Processed	0	0	0
TimeSeries	✓ Processed	0	0	0
Tombstones	⚠ Skipped	-	-	-
Revisions	✓ Processed	0	0	0
Attachments	✓ Processed	0	-	0
Conflicts	✓ Processed	0	-	0
Indexes	✓ Processed	2	-	0
Identities	✓ Processed	0	-	0
Compare Exchange	✓ Processed	0	-	0
Compare Exchange Tombstones	⚠ Skipped	-	-	-
Subscriptions	✓ Processed	0	-	0
Time Series Deleted Ranges	⚠ Skipped	-	0	-

Show details
Close

Figure 5-17: Database Import dialog

- 10. Navigate to 'Database' menu option on the left
- 11. Verify the database size and documents as shown in Figure 5-18.

ONLINE ecqm.reference.2024 Node A

216.87 MB 35,188 2 Up for 29 minutes Never backed up

Figure 5-18: Database information display

5.1.9 Restore Identity and Config Database

If the site has followed the steps in Section 5.1.2, and taken backups for the **ecqm.identity** and **ecqm.config** databases, repeat the steps from Section 5.1.8 for creating the **ecqm.identity** and **ecqm.config** databases using the backup locations used in Section 5.1.2.

5.2 Set up the ECQM Web Site

1. Create an **ECQM** folder in the **C:\inetpub** directory.
2. Unzip distributed **ecqm0700.install.zip** application bundle into the **C:\inetpub\ECQM** folder created above.

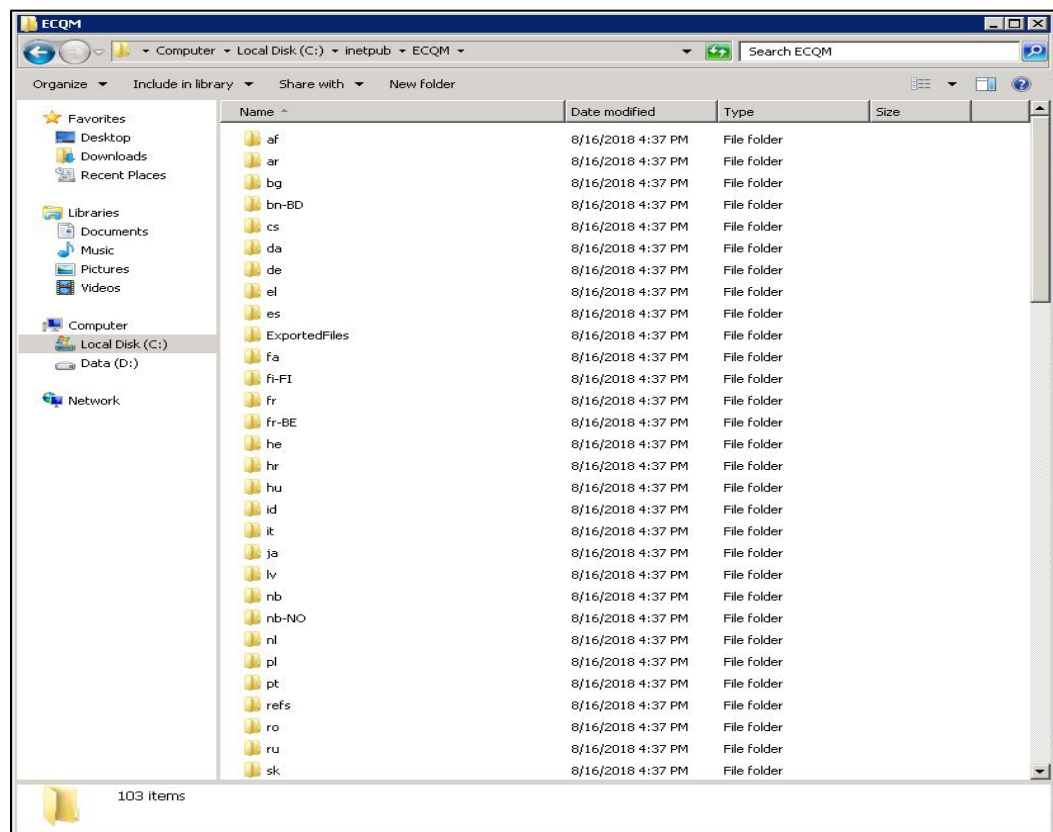


Figure 5-19: ECQM application bundle

5.2.1 ECQM Configuration Parameters

1. Locate the **appsettings.json** file in the **C:\inetpub\ECQM** folder.
2. Open the **appsettings.json** file in a text editor (e.g., Notepad).

- This file must be edited with caution. Do not add any extra characters, spaces, or enter lines in this file. Also, ensure that all edited values are in double quotes as displayed below.

Note: If there are access issues in saving this file after completing the modifications, make a copy of this file and save it to the **Desktop** or **Documents** folder, complete the changes in that file and then copy/paste that file to the **C:\Inetpub\ECQM** folder to overwrite the original file. Alternatively, write permissions could be added to the **C:\Inetpub\ECQM** folder for the current user making the modifications.

- Configure the **default Super Admin user** by filling the **Username**, **FirstName**, **LastName**, and **Email** fields as shown in Figure 5-20.



```

10  ]
11  },
12  "DefaultSuperAdmin": {
13    "Domain": "d1",
14    "Username": "first.last",
15    "FirstName": "first",
16    "LastName": "last",
17    "Email": "emailAddress"
18  },
19  "PurgeSettings": {
20    "RetentionDays": 90
21  },
22  "DocumentStoreSettings": {
23    "Urls": [
24      "http://127.0.0.1:27019"
25    ],
26    "CertificatePath": "",
27    "CertificatePassword": ""
28  },
29  "Serilog": {
30    "MinimumLevel": {
31      "Default": "Information",
32      "Override": {
33        "Microsoft": "Warning"
34      }
35    },
36    "WriteTo": [
37      {
38        "Name": "File"

```

Figure 5-20: Configuring the default Super Admin (1)

Note: Figure 5-20 has the IHS D1 directory (credential store) information for authentication. If the site is using another or local directory service (user credential store), modify the highlighted fields as shown in Figure 5-21. Make sure that the **Directory Name** value and **Super Admin Domain** value are the same.



```
10     ]
11   },
12   "DefaultSuperAdmin": {
13     "Domain": "dl",
14     "Username": "first.last",
15     "FirstName": "first",
16     "LastName": "last",
17     "Email": "emailAddress"
18   },
19   "PurgeSettings": {
20     "RetentionDays": 90
21   },
22   "DocumentStoreSettings": {
23     "Urls": [
24       "http://127.0.0.1:27019"
25     ],
26     "CertificatePath": "",
27     "CertificatePassword": ""
28   },
29   "Serilog": {
30     "MinimumLevel": {
31       "Default": "Information",
32       "Override": {
33         "Microsoft": "Warning"
34       }
35     },
36     "WriteTo": [
37       {
38         "Name": "File"
```

Figure 5-21: Configuring the default Super Admin (2)

5. Use the correct port (LDAP) in the directory settings. The default port for Microsoft Active Directory (LDAP) is **389**.
 - a. **Optional:** The **LDAPS** (secure LDAP) parameter can be set to **True** if it is implemented in the directory service; input the correct port for LDAPS.
6. The document store settings show the URL for the RavenDB. For a single-tier installation the default value is the correct value.

```

10     ]
11   },
12   "DefaultSuperAdmin": {
13     "Domain": "dl",
14     "Username": "first.last",
15     "FirstName": "first",
16     "LastName": "last",
17     "Email": "emailAddress"
18   },
19   "PurgeSettings": {
20     "RetentionDays": 90
21   },
22   "DocumentStoreSettings": {
23     "Urls": [
24       "http://127.0.0.1:27019"
25     ],
26     "CertificatePath": "",
27     "CertificatePassword": ""
28   },
29   "Serilog": {
30     "MinimumLevel": {
31       "Default": "Information",
32       "Override": {
33         "Microsoft": "Warning"
34       }
35     },
36     "WriteTo": [
37       {
38         "Name": "File"

```

Figure 5-22: Configuring the default Super Admin (3)

7. Save and close the **appsettings.json** file.

Note: If there are access issues in saving this file after completing the modifications, make a copy of this file and save it to the **Desktop** or **Documents** folder, complete the changes in that file and then copy/paste that file to the **C:\Inetpub\ECQM** folder to overwrite the original file. Alternatively, write permissions could be added to the **C:\Inetpub\ECQM** folder for the current user making the modifications.

5.2.2 Configure IIS Request Content Length

To configure the IIS Request Content Length:

1. Click **Start | Administrative Tools | Internet Information Services (IIS) Manager**. Select the server name in the IIS Manager Tree.
2. Double-click the **Request Filtering** icon as shown in Figure 5-23.

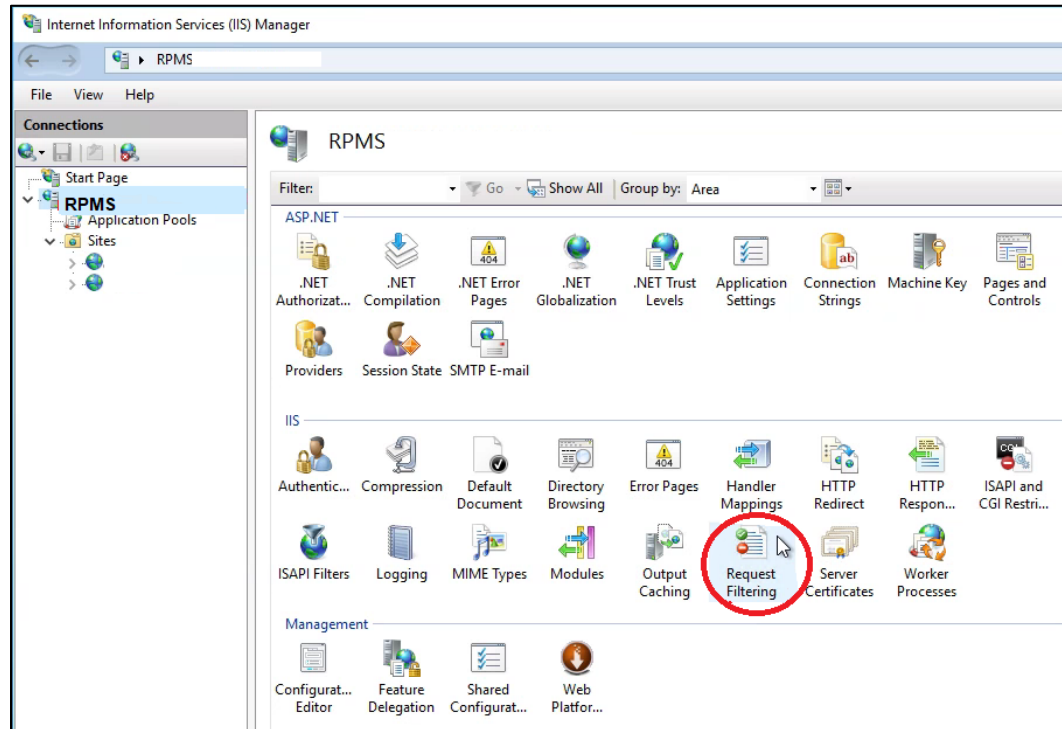


Figure 5-23: Request Filtering

3. Click the **Edit Feature Settings** link in the **Action** pane on the right side.
4. Set the **Maximum allowed content length (Bytes)** to **100000000** (one hundred million) as shown in Figure 5-24.
5. Click **OK**.

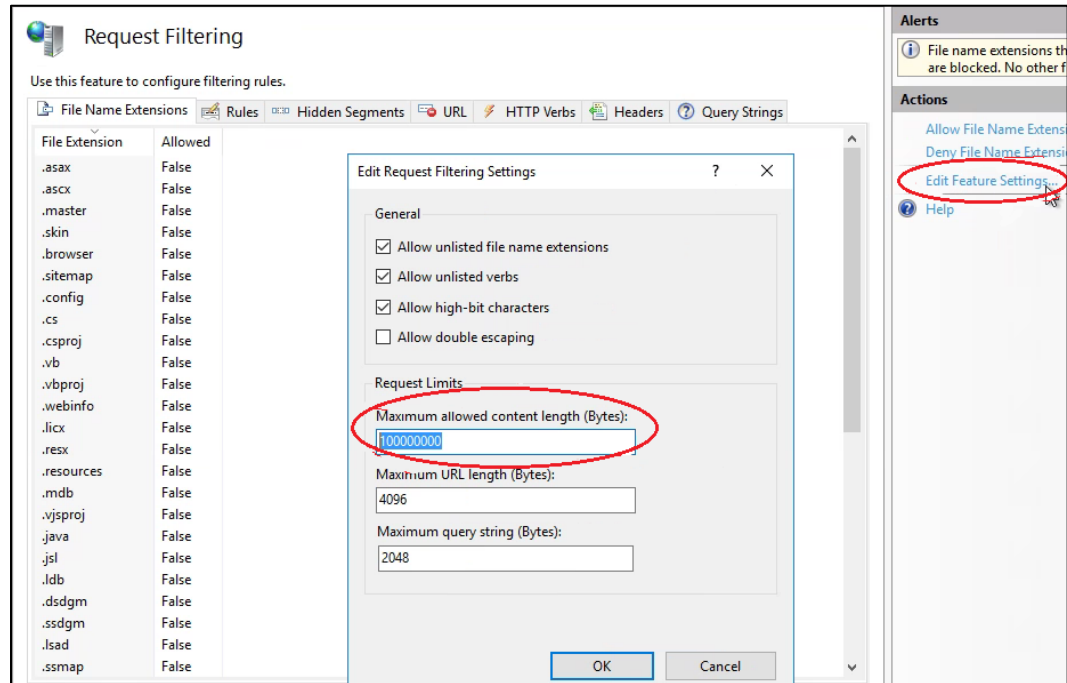


Figure 5-24: Edit Request Filtering Settings

5.2.3 Add the ECQM Application Pool

To add the Application Pool:

1. Return to the **IIS Manager** opened in Section 5.2.2 and browse to **Application Pools** in the tree structure below your IIS node as shown in Figure 5-25.

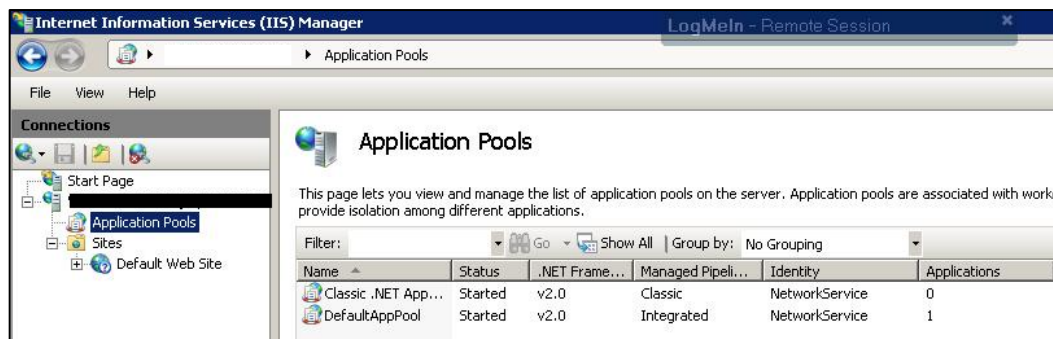


Figure 5-25: IIS Manager browsed to Application Pools

2. Right-click **Application Pools** and select **Add Application Pool**. The **Add Application Pool** dialog (Figure 5-26) displays.

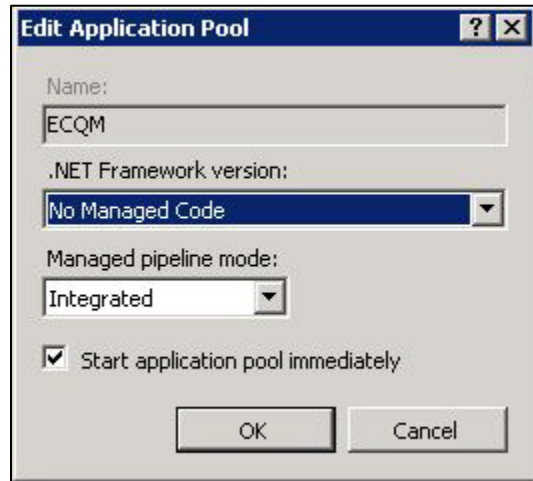


Figure 5-26: Edit Application Pool dialog

3. In the **Name** field, type the name of the application pool (**ECQM**).
4. In the **.NET Framework version:** field, select **No Managed Code**.
5. Click **OK**.
6. Right-click the newly created application pool in **IIS Manager** and click **Advanced Settings**. A dialog similar to Figure 5-27 displays.

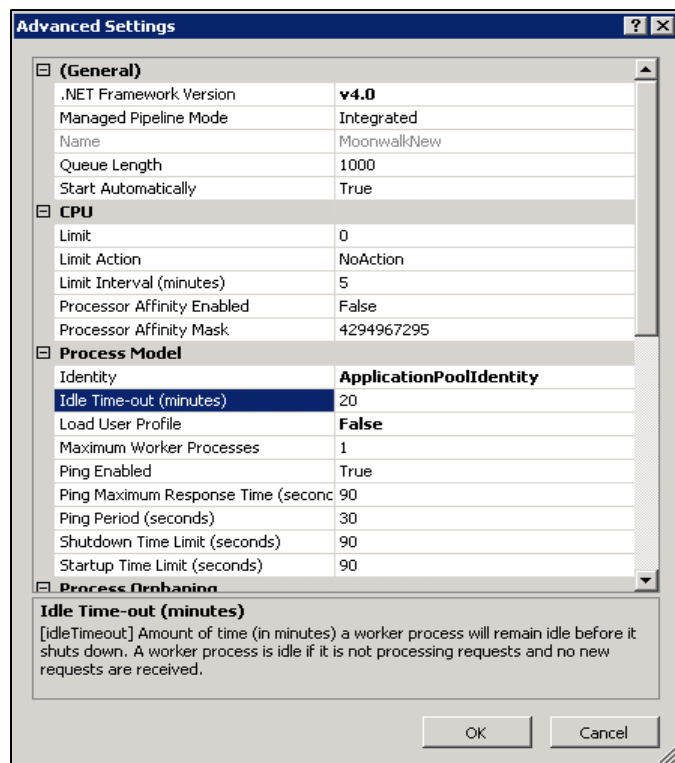


Figure 5-27: Application Pool Advanced Settings

7. Change the **Idle Time-out** value to **15** minutes.
8. Change the **Identity** value to **LocalSystem**.
9. Click **OK** to save the changes and close the dialog.

5.2.4 Add the ECQM Site

To add the new Web Site:

1. Right-click **Sites** in the **Connections** pane of the IIS Manager and select **Add Web Site**. The **Add Web Site** dialog (Figure 5-28) displays.

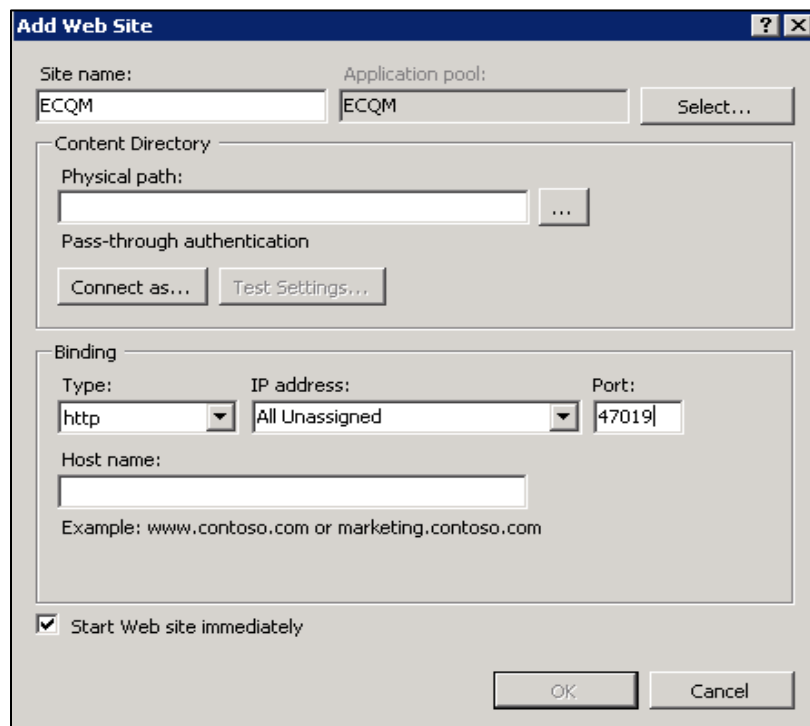


Figure 5-28: Add Web Site dialog

2. In the **Site name** field, type **ECQM**.
3. Click **Select** and select the ECQM application pool created in the previous steps.
4. In the **Physical Path** field, browse to the **C:\inetpub\ECQM** folder created in Section 5.2. Be aware that the location will be different if the folder was created on a different drive.
5. Set the port number in the **Binding** section. The recommended port for ECQM is **47019**. The port may need to be added to Firewall exceptions if firewall is enabled.
6. Click **OK** to save the changes and close the **Add Web Site** dialog.

5.2.5 Configure the ECQM Connection Timeout

To configure the ECQM connection timeout:

1. Select the **ECQM** site under the Sites tree control.
2. Click **Limits** on the right side under **Configure**.
3. Set the **Connection time-out** to **900** as shown in Figure 5-29.
4. Click **OK**.

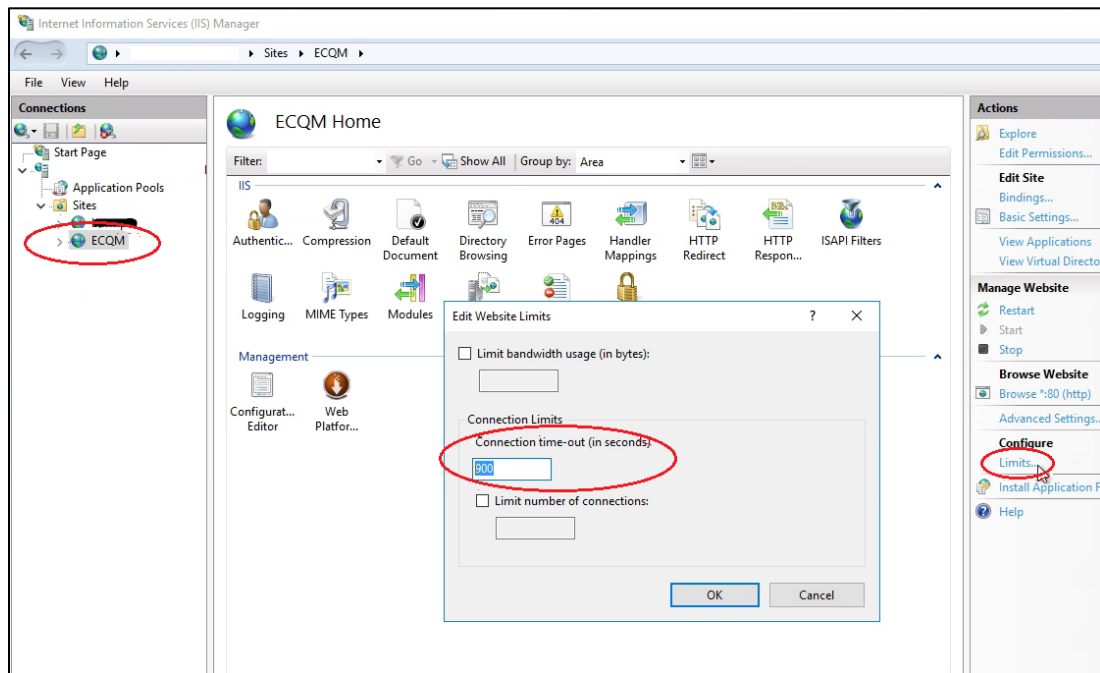


Figure 5-29: Connection time-out

5.3 Install the SSL Certificate

Note: Follow this section if SSL configuration is required.

To install the SSL server certificate acquired in Section 4.1:

1. From the Windows **Start** menu, select **Administrative Tools**.
2. Select **Internet Information Services (IIS) Manager**.
3. Click the server name in the left panel.
4. Double-click **Server Certificates** in the **Security** section (near the bottom of the panel).



Figure 5-30: Internet Information Services (IIS) Manager

5. In the **Actions** panel (on the right), click **Complete Certificate Request**. The **Complete Certificate Request** dialog displays.

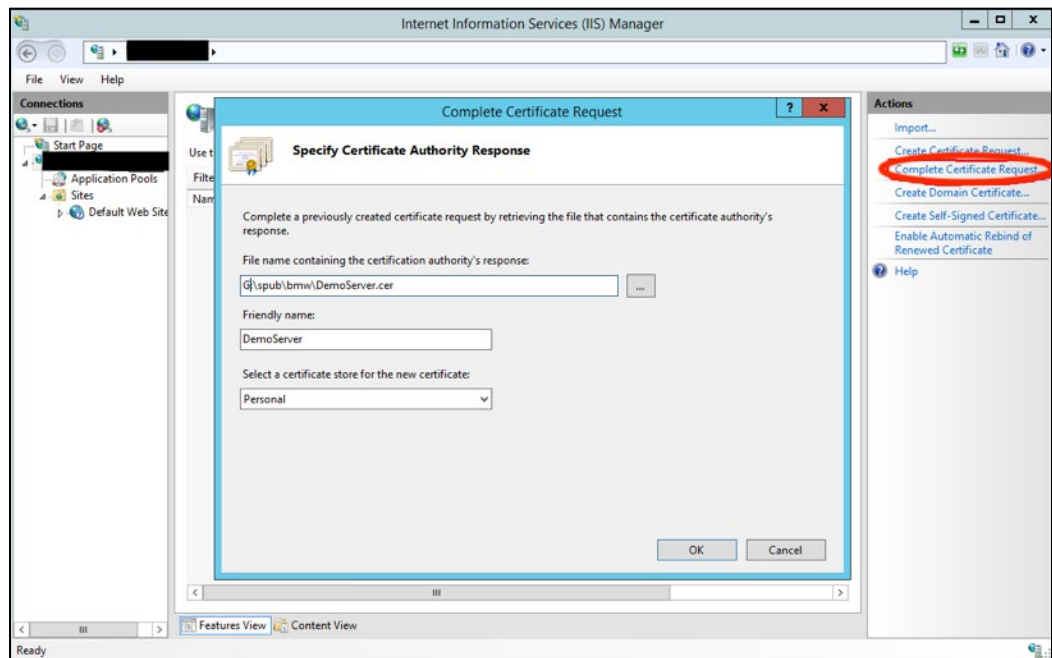


Figure 5-31: Complete Certificate Request dialog

Note: The Complete Certificate Request must be completed on the same system where the Certificate Signing Request was generated (Section 4.1.1, Step 11) to ensure the private key is correctly associated with the new certificate.

6. Click the **ellipses** button (...) to browse to the location where the server certificate file acquired in Section 4.1 was saved.
7. In the **Friendly name** field, type the **friendly name** for the certificate. This name is intended for use for management of certificate stores on the server.
8. In the **Select a certificate store for the certificate** field, verify **Personal Store** is selected.
9. Click **OK** to complete the procedure.

5.4 Configure the SSL Certificate

Note: Follow this section if SSL configuration is required.

To configure the SSL certificate:

1. In the **IIS Manager** window, select the **name** of the server where the certificate was installed.
2. Under **Sites**, select the **site** to be secured with the SSL certificate.
3. In the **Actions** pane, click **Bindings**.
4. Click **Add**.
5. In **Add Site Binding**:
 - a. For **Type**, select **https**.
 - b. For **IP address**, select **All Unassigned**, or the IP address of the site.
 - c. For **Port**, specify a port for SSL, the default is **443**. The recommended port for ECQM is **47019**.

Note: When installing SSL with HTTPS, first remove any previous site bindings for HTTP. The **Site Bindings** dialog as shown in Figure 5-30 will indicate whether there any HTTP site bindings and allow their removal.

- d. Select the **SSL certificate** just installed. Click **OK**.

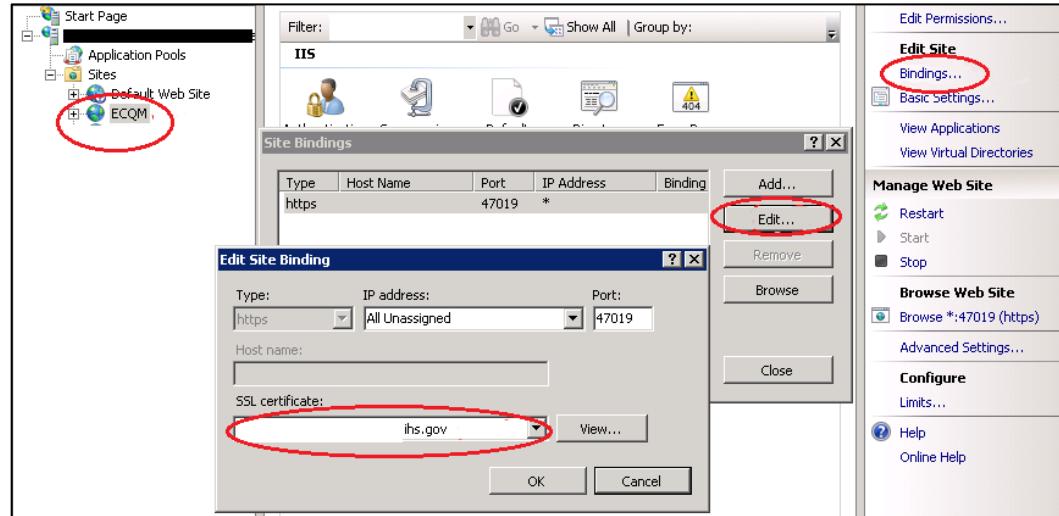


Figure 5-32: Edit Site Binding dialog

6. Click **Close**.
7. Close **Internet Information Services (IIS) Manager**.

The SSL Certificate is now configured. Visit the Web site via an HTTPS connection, using the domain name, not the IP address, to verify the installation.

6.0 Initiate the ECQM System

6.1 Reset the ECQM Application

To reset the ECQM application:

1. **Stop** ECQM Web site.

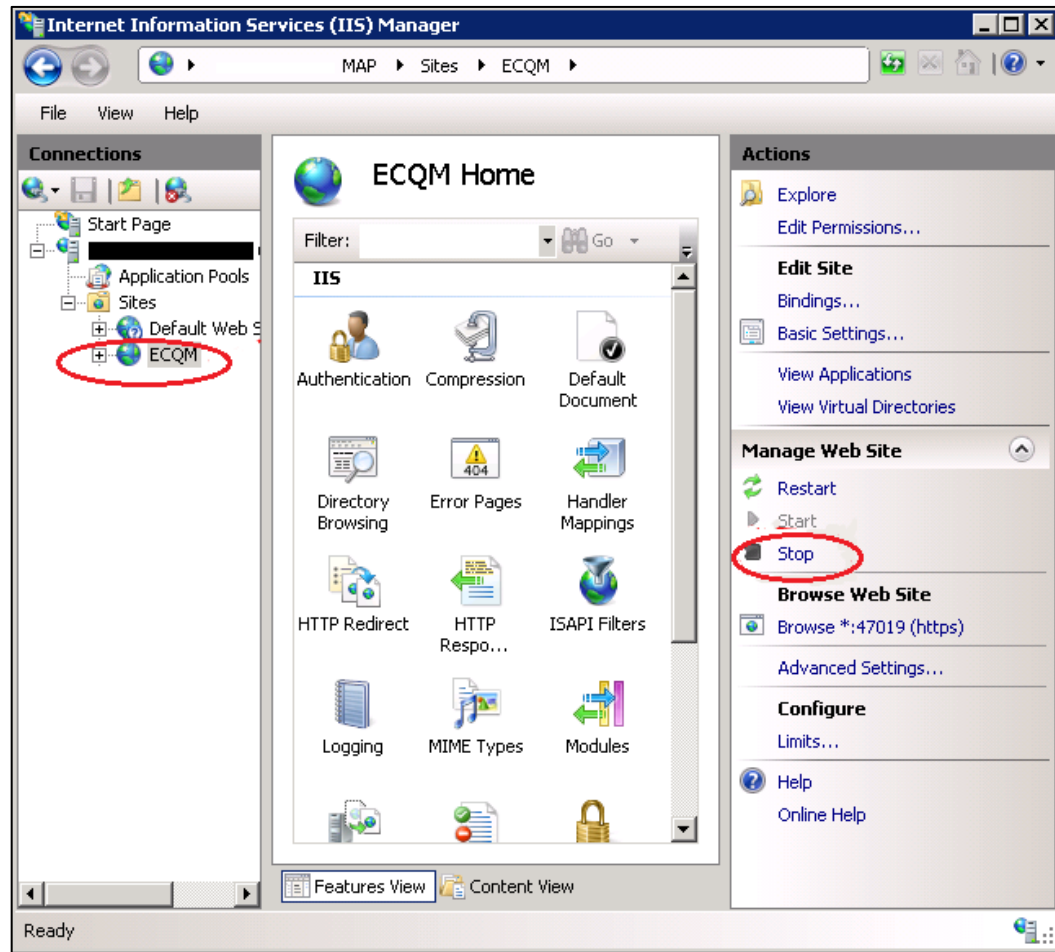


Figure 6-1: Manage Web Site–Stop

2. **Stop** ECQM Web site application pool.

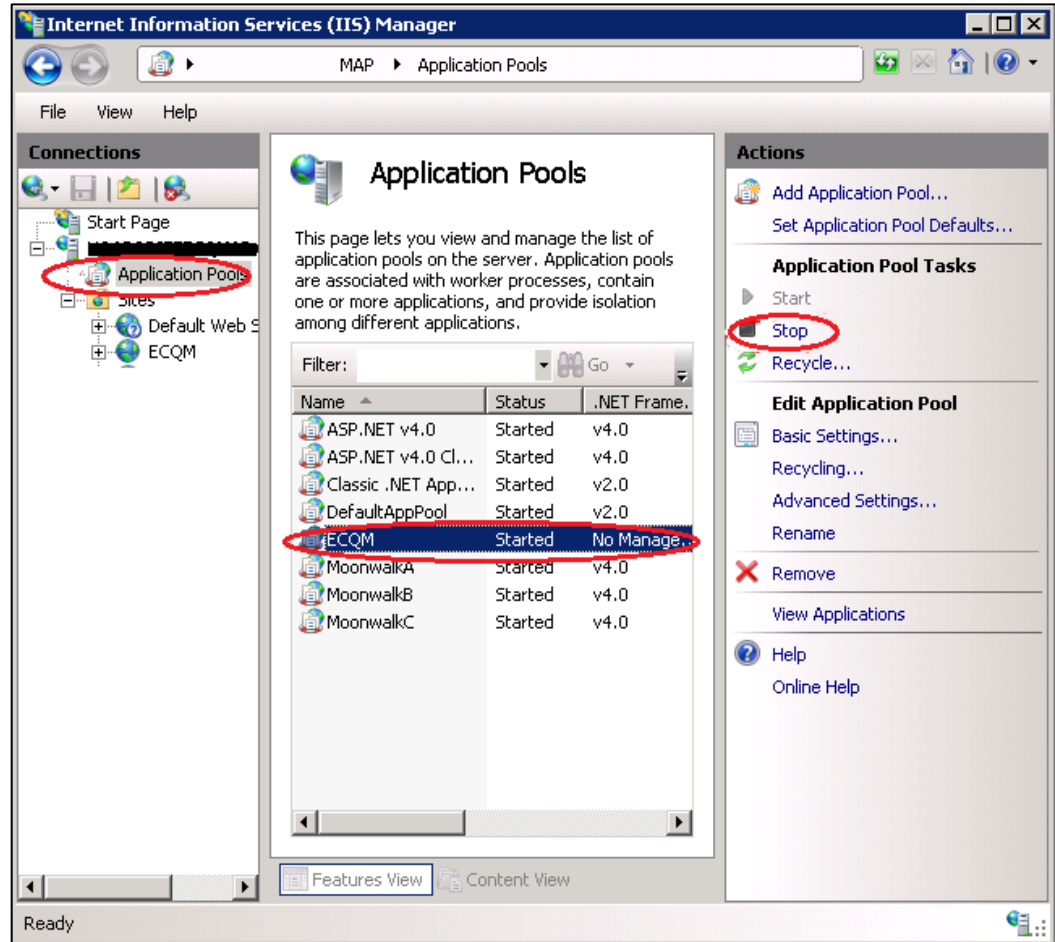


Figure 6-2: Application Pool Tasks–Stop

3. **Start** the ECQM Web site application pool.

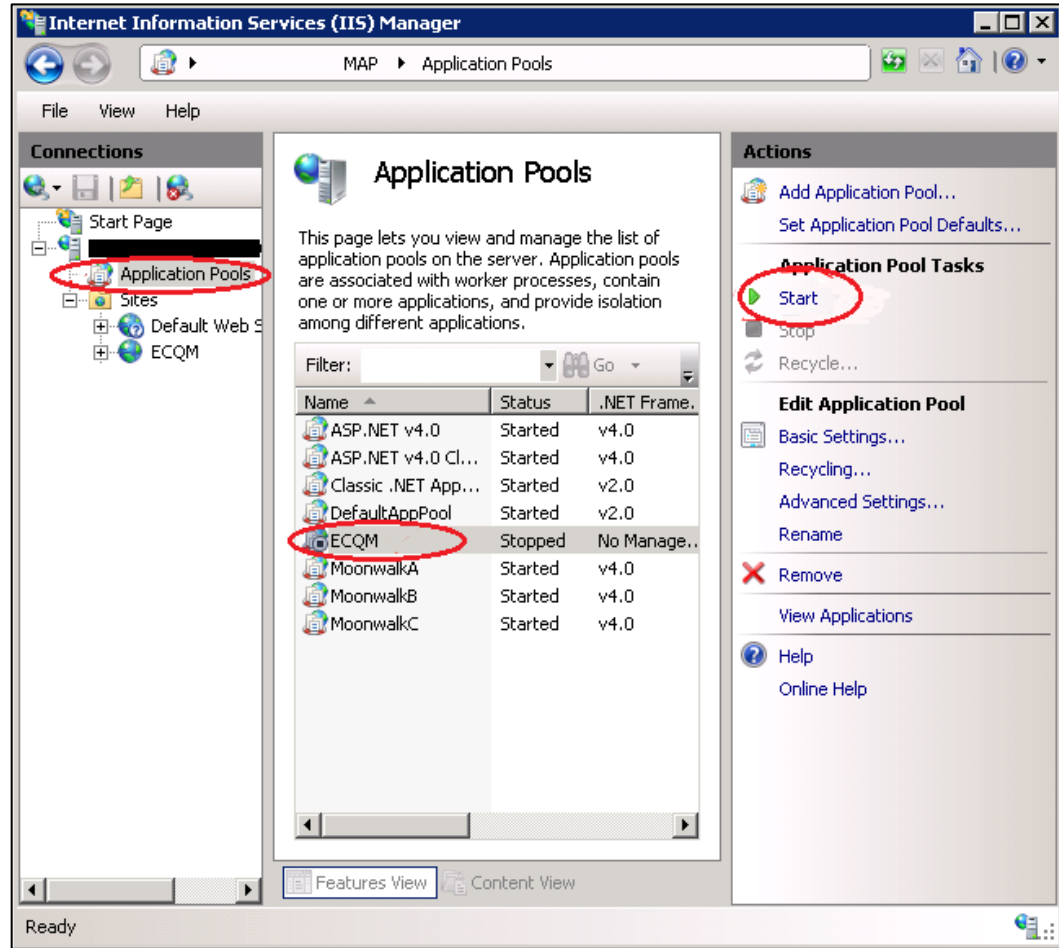


Figure 6-3: Application Pool Tasks–Start

4. **Start** the ECQM web site.

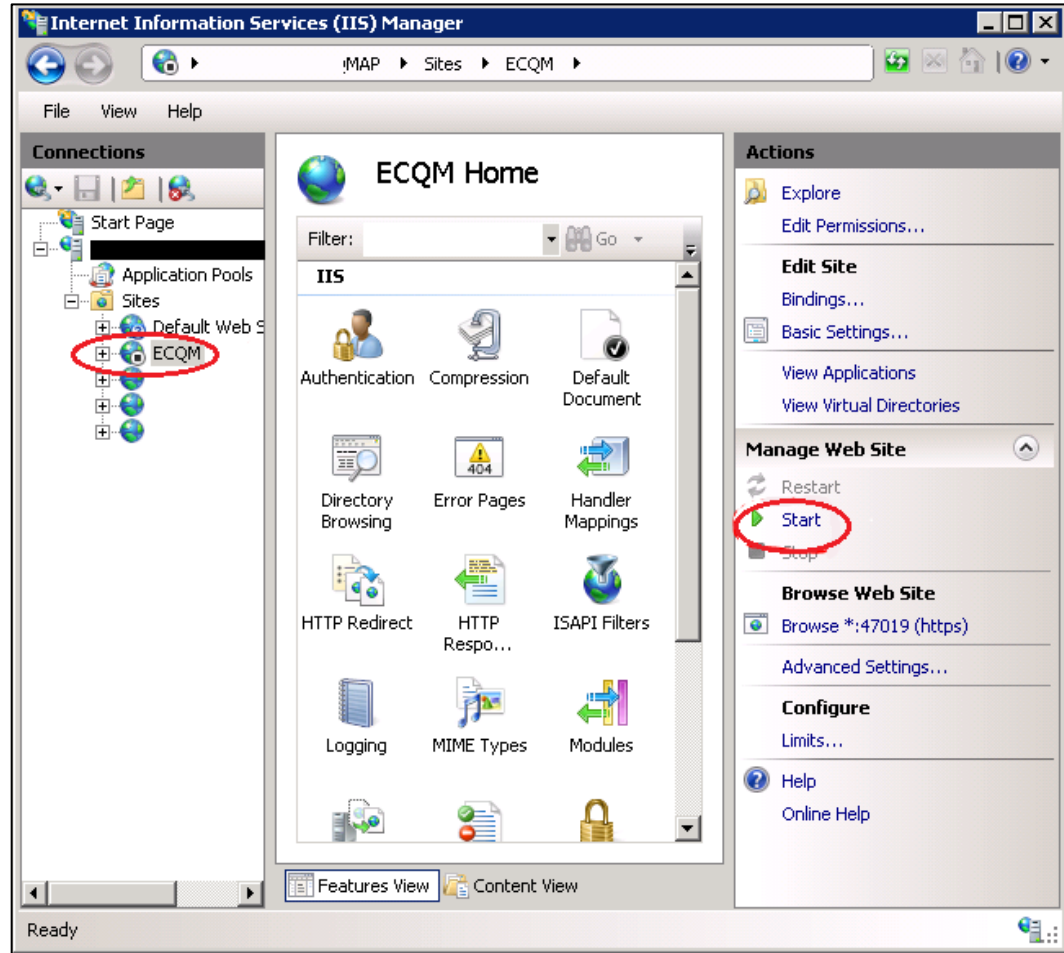


Figure 6-4: Manage Web Site–Start

6.2 Launch the ECQM Application

To launch ECQM:

1. Open Google Chrome.
2. In the Address bar, enter the **IP address** of your Windows application server and the **port number**.
 - For sites using SSL: `https://domain_name:47019`
 - For sites not using SSL: `http://ip_address:47019`
3. Wait for the ECQM Login screen to load.

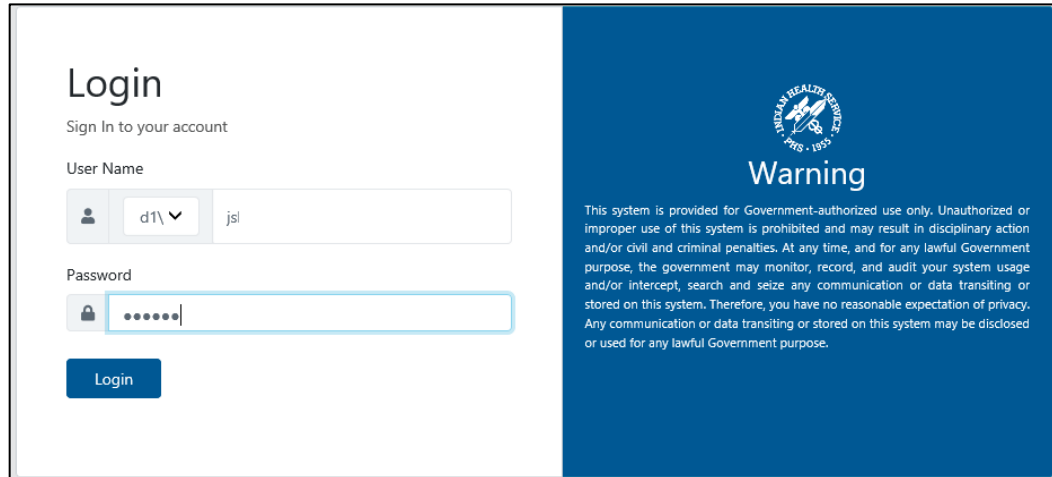


Figure 6-5: Login screen

Note: It takes approximately three minutes for ECQM initialization after the application is accessed for the first time. Wait three minutes before attempting to login for the first time.

4. Confirm that the drop-down has the **domain/directory** name selected as configured in the **ECQM Configuration Parameters** section.
5. Login using the **DefaultSuperAdmin** credentials as configured in Section 5.2.1.

Note: At this stage, the application only authorizes the Default Super Admin user. Once the Admin logs in, he/she can add additional users as per the user manual.

6. Click **Login**. For further steps refer to the user manual.
7. Verify ECQM version is ECQM 7.0.0.

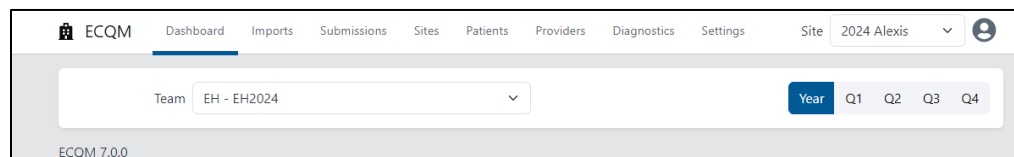


Figure 6-6: ECQM Version

Appendix A Disable Logging in IIS Manager

The Internet Information Services (IIS) manager is set up by default with a Logging feature which allows it to capture certain types of requests to log files in the IIS installation folder. We recommend disabling this logging feature for the ECQM web sites as it may result in storage issues if the log file is not maintained or monitored.

The following steps show how to disable the Logging feature for each ECQM Web site setup at your site. This information can also be found on the Microsoft web site at:

<https://technet.microsoft.com/en-us/library/cc754631%28v=ws.10%29.aspx>.

1. From the Windows **Start** menu, select **Administrative Tools**.
2. Select **Internet Information Services (IIS) Manager** to display the IIS Management Console.

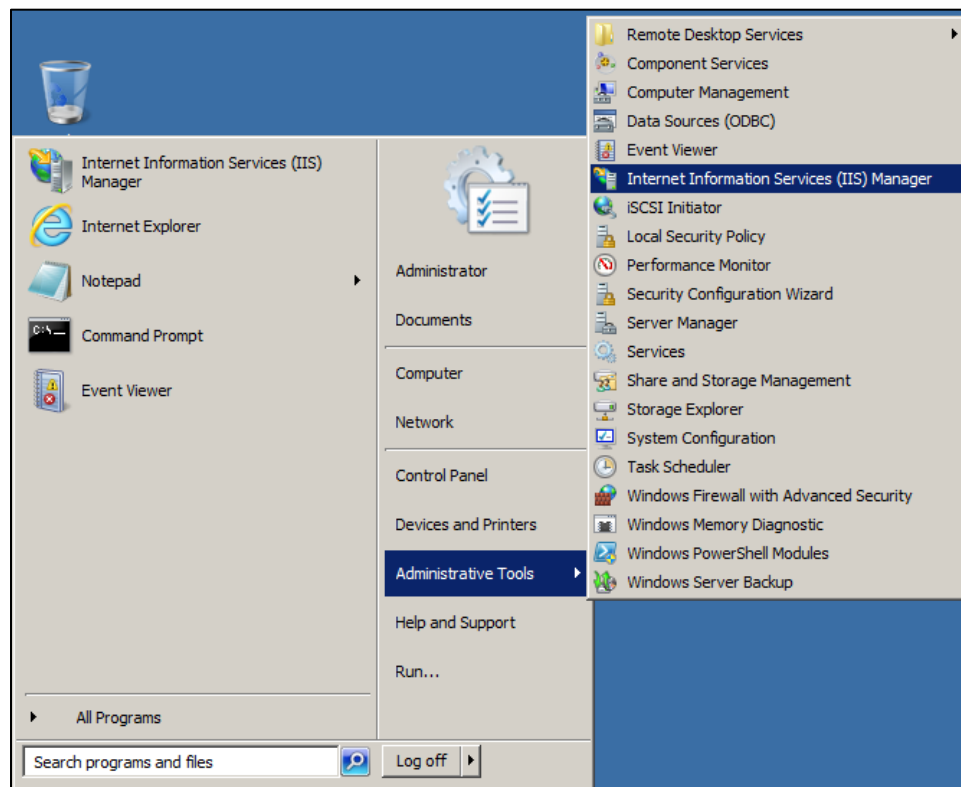


Figure A-1: Opening Internet Information Services (IIS) Manager

3. Select the **ECQM** Web site in the left pane.
4. Double-click **Logging** to display the **Logging** dialog.

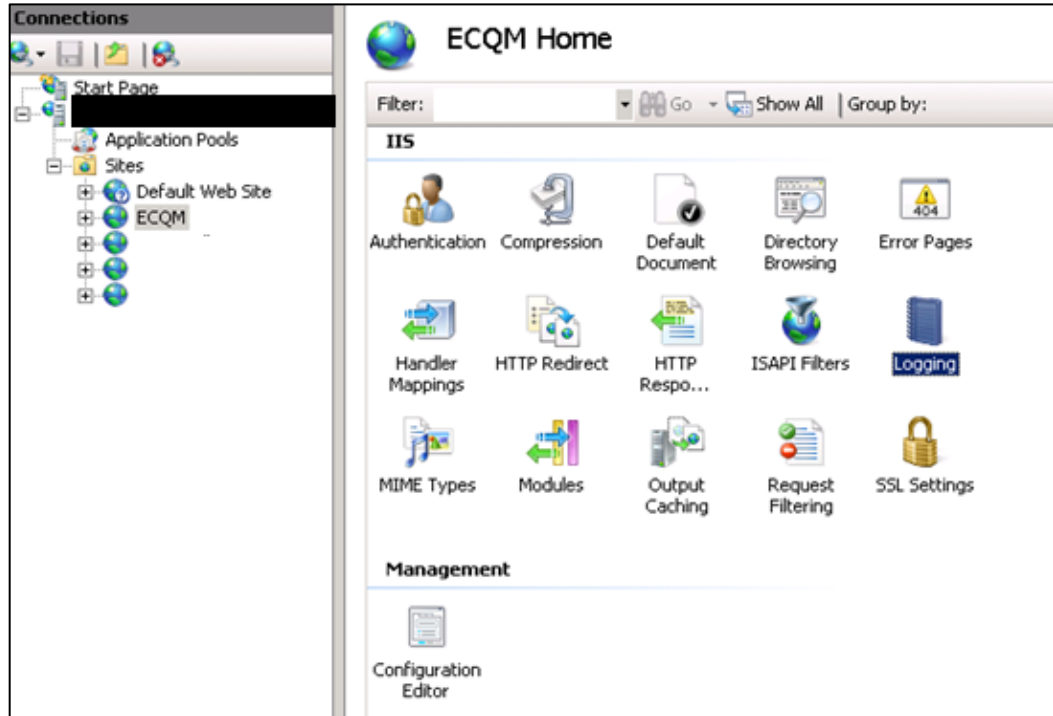


Figure A-2: IIS Management Console

5. Click **Disable** in the **Actions** pane.

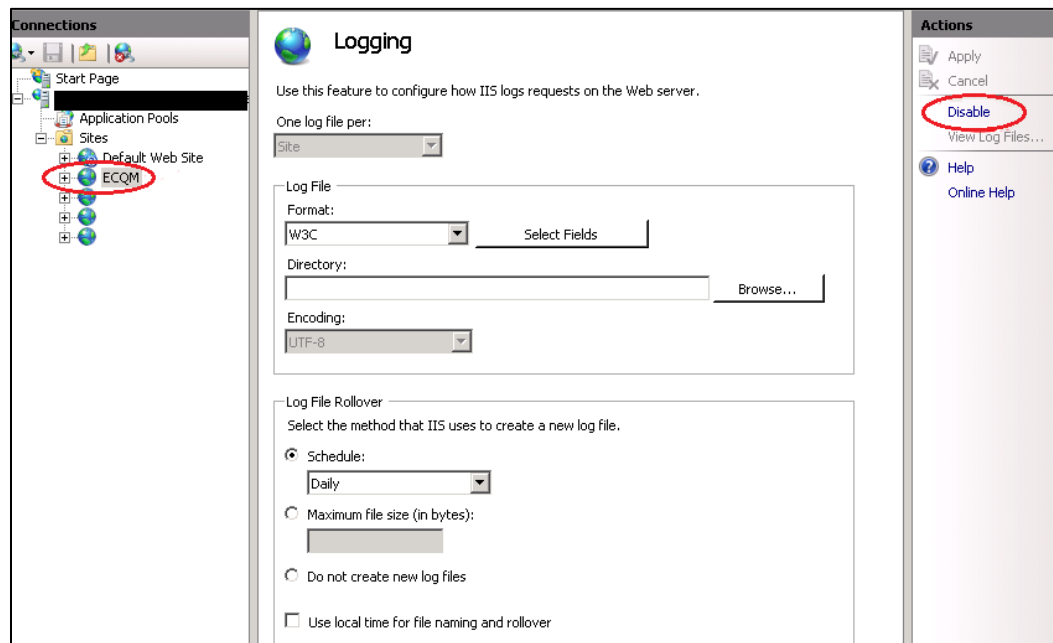


Figure A-3: Logging window

An example of a disabled logging window is shown in Figure A-4.

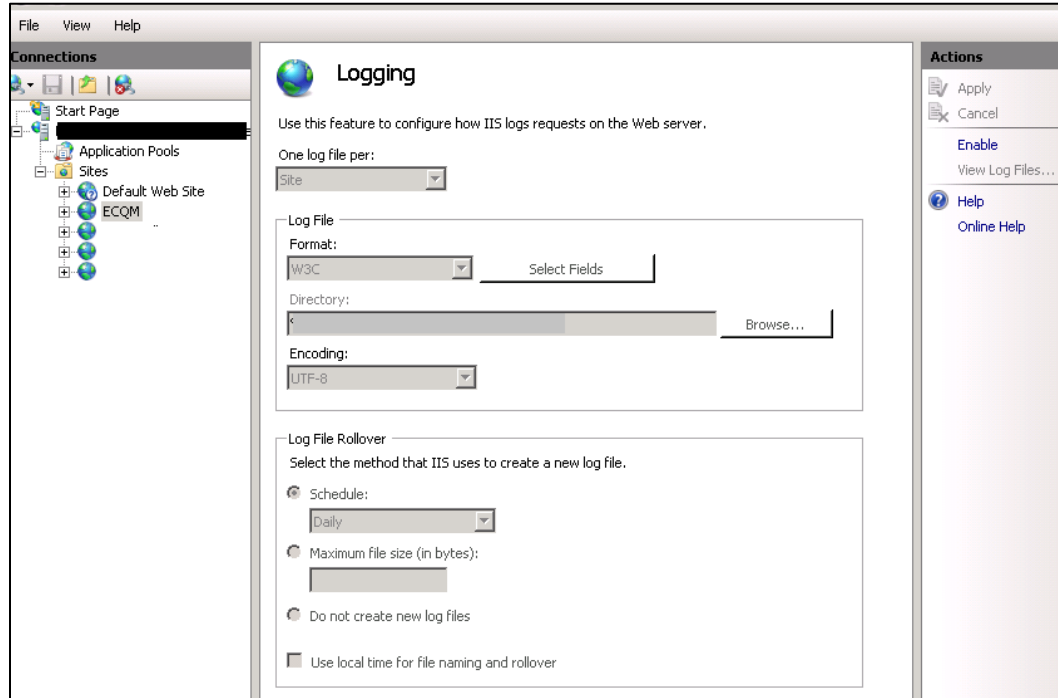


Figure A-4: Disabled Logging window

Acronym List

Acronym	Term Meaning
eCQM	electronic Clinical Quality Measures
GUI	Graphical User Interface
HTTPS	HyperText Transfer Protocol Secure
IHS	Indian Health Service
IIS	Internet Information Service
IP	Internet Protocol
QRDA	Quality Reporting Document Architecture
SSL	Secure Sockets Layer
URL	Uniform Resource Locator

Contact Information

If you have any questions or comments regarding this distribution, please contact the IHS IT Service Desk.

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Web: <https://www.ihs.gov/itsupport/>

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