Implementation Guide

SEP

Version 2020

ReliaSoft

SEP 2020 Implementation Guide

Contents

SEP Implementation Guide

This document provides instructions to implement ReliaSoft SEP by HBM Prenscia for your organization. It covers tasks that typically require IT expertise.

After the website is functional, an application admin can enable and configure various options on the SEP Admin page. For information about these options, see SEP Admin Page in the SEP help.

1 SEP Architecture

SEP is a web-based application that serves the needs of engineering teams of any size. Based on the .NET Framework, it is designed to be n-tier, scalable, distributable, robust and able to be deployed across multiple servers or on a single computer.

1.1 Server Requirements

If you plan to host the database and website on the same server, you will need the following:

- Windows 2008 R2 or newer
- .NET 4.6
- IIS with support for serving ASP.NET
- SQL Server 2008 or newer OR Oracle 10g or newer (32-bit and 64-bit versions of all, full version only)

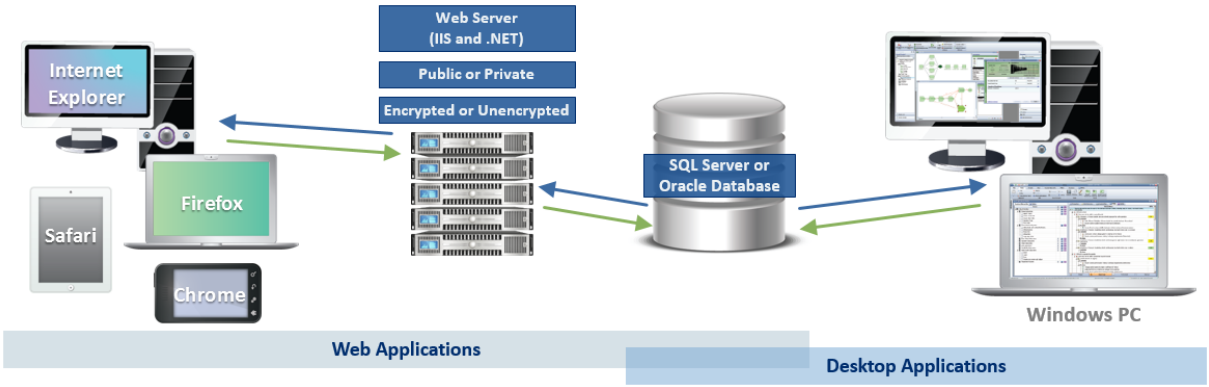
1.2 Client Requirements

Once the website has been implemented, users can access it with any browser that supports the following doctype:

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "http://
www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
```

This includes most common browsers (such as Internet Explorer, Chrome, Safari and Firefox) that are available for Windows, Mac and tablet operating systems. If the site is private (e.g., http://InternalServer/SEP), an application administrator may need to provide instructions for accessing the site on the internal network from mobile devices (e.g., via VPN or some other method).

These are the same requirements as for the XFRACAS failure reporting, analysis and corrective action system. Both applications can be deployed together on the same database and web server(s).



2 Prepare the Database Server - SQL Server or Oracle

The ReliaSoft desktop applications, XFRACAS and SEP are all designed to connect with the same database on either SQL Server or Oracle.

If you need to establish a new database, the following considerations apply for preparing the database server. Later, you will use the admin utility to either create the database or connect to an existing one. (*See Section 6 and Section 7*.)

If you are setting up for SQL Server

- Make sure you have the latest version of SQL Server running. To do this, run the following query in Query Analyzer: "Select @@version". This should return a value like "Microsoft SQL Server 2005 - 9.00.3042 (Intel X86)" or "Microsoft SQL Server 2008 R2 - 10.50.1617 (X64)," depending on which SQL Server service pack you have installed.

- Make sure you know the SQL Server Name. This is a local server name or IP address so the IIS machine with the .NET application can connect to the database. These instructions assume that you will use a default instance of SQL Server to host the ReliaSoft database (e.g., SERVERNAME). If not, you must specify the instance when you enter the server name (e.g., SERVERNAME\INSTANCENAME).

If you are setting up for Oracle

For easier support, we recommend installing the SQL Worksheet (available with the Enterprise edition) or Oracle SQL Developer (free to download from the Oracle website).

3 Prepare the Web Server - IIS

To prepare the web server prior to installing SEP, make sure the IIS Web Server role and services are installed. In addition, if applicable, prepare for SSL protection.

3.1 IIS Roles and Features

Install the Web Server (IIS) role (if it is not already installed) and make sure the following role services are also installed. (*Instructions follow this table for Windows 2016, 2012 and 2008.)*

	Windows 2016/2012	Windows 2008
Web Server		
Common HTTP Features		
Default Document	x	x
Directory Browsing	x	x
HTTP Errors	x	x
Static Content	x	x
Health and Diagnostics		
HTTP Logging	x	x
Custom Logging	x	x
Logging Tools	x	x
Request Monitor	x	x
Performance		
Static Content Compression	x	x
Dynamic Content Compression	x	x
Security		
Request Filtering	x	x
IP and Domain Restrictions	x	x
Windows Authentication	x	x
Application Development		
.NET Extensibility		x
.NET Extensibility 4.5 or 4.6	x	
Application Initialization (if Windows Server 2016)	x	
ASP	x	x
ASP.NET		x
ASP.NET 4.5 or 4.6	x	
ISAPI Extensions	x	x
ISAPI Filters	x	x
Server Side Includes	x	x
Management Tools		
IIS Management Console	x	x

On Windows Server 2012 or 2016

Note that if you do not already have the required version of the .NET Framework installed, you will need to have the operating system installation media available when you install the Web Server (IIS role). The required file is in the sources/sxs folder.

1. Open the Server Manager.
2. Click the **Manage** menu, choose **Add Roles and Features** and proceed through the wizard.
3. On the **Server Roles** page, select **Web Server (IIS)**.
   a. *If the role is already installed, expand the node, review the services that are already installed and select additional services if applicable.*
   b. *If the role is not already installed, accept any prompts to install required features and proceed to the* ***Web Server (IIS) > Role Services*** *page where you can select the services you need to install.*
4. At the end of the wizard, click **Install**.

On Windows Server 2008

1. Open the Server Manager.
2. If the Web Server (IIS) role is not installed, view the **Roles** page and, under **Roles Summary**, click **Add Roles**. Follow the wizard to install the role and services.
3. If the Web Server (IIS) role is already installed, view the **Roles > Web Server (IIS)** page. Under Role Services, review the services that are already installed. If you need to add service(s), click **Add Role Services** and follow the wizard.

3.2 SSL Certificate

If you want the website to use HTTPS for secure communication (SSL/TLS), you must have a digital certificate. Later, you will use this certificate to create the binding for the site. (*See Section 8 on page 8*.)

If you don't purchase a third-party certificate, you can create your own via another method, such as by generating a self-signed certificate via IIS Manager or using the Active Directory Certificate Services role installed on the server.

4 Establish a Service Account for the Application (if Applicable)

If the database is on SQL Server, we recommend establishing a service account (e.g., "RSUser") that SEP will use to connect to the ReliaSoft database as well as any other external databases that may be used to create "custom connection" dashboards in the Reliability Data Warehouse (RDW). This account must meet several requirements:

- It must be an Active Directory account.
- Ideally, it should have a password that does not expire (recommended).
- If the database is on SQL Server, a user should be assigned to a public server role, with at least the **db_datareader** and **db_datawriter** roles for the ReliaSoft database. *(If the database does not yet exist, you will need to add the roles via SQL Server after you create it in Section 6.)*
- It should have at least the **db_datareader** role for any other SQL Server databases that will be used by RDW custom connections

If you plan to use this account as a database connection for **Open** buttons, it must also meet the requirements for an "impersonation user" for all computers that will run desktop applications—specifically, it must be on a trusted domain and it cannot be a local admin, domain admin or member of any Windows admin group (see Section 8.6 on page 11). Alternatively, you can establish a separate impersonation account for the application admin to use for **Open** buttons only. For details on other options to configure the database connection for **Open** buttons, see SEP Admin Page in the SEP help.

5 Install the Web Portal and Activate the License

After you have prepared the database and web server(s), you can log in to the web server as an administrator and perform the following steps. User Account Control (UAC) can either be left on or turned off for this installation.

1. Run the SEP setup (e.g., **SEP19.exe**) and follow the steps in the wizard to create the website and install the activation and admin tools.
2. From **Start**, search for **"**SEP 2020 Activation**"** then run the product activation tool and follow the steps to activate your license.

The license will be registered to a specific e-mail address, which will receive the notification required to activate it. This will be the same address for all stages of license usage from development/staging to production. Choose an address that can be accessed by someone who changes the hardware on the server. If the hardware changes for any reason, the license must be reactivated to get SEP back up and running.

6 Create the ReliaSoft Database (if Applicable)

If you already have a database that the website will use, skip ahead to Section 7.

6.1 Plan for Your Implementation

To create a new ReliaSoft database, you'll need to run the SEP admin utility (which resides on the web server) from a Windows user account that has the following permissions:

- For SQL Server implementations, you must be able to create objects under the default database owner (dbo) schema. Be prepared to specify the server and database names.

- For Oracle implementations, you must be able to create a database. Be prepared to specify a port, host, service name, schema and password.

6.1.1 Created Admin Accounts

During this process, the admin utility automatically creates two new user accounts for you—one for SEP and ReliaSoft desktop applications and another for XFRACAS—that use your Windows login and provide full admin permissions for those applications. The XFRACAS account is a special, IT/admin-only account for tasks such as updating database tables, rolling out new permissions to other admin users, performing bulk data imports (so imported records are not assigned to a specific user), etc. It is invisible to regular users and does not count against the number of users allowed by your XFRACAS license.

6.1.2 Future Upgrades and Ongoing IT / Maintenance Tasks

We recommend performing upgrades and ongoing IT/admin tasks from the same Windows account that you used to create the database (which, by default, has the database permissions required for all ReliaSoft applications). If you cannot identify a single person in your organization who will be available to perform these tasks—both now and in the future—we recommend establishing a shared service account for this purpose.

Note that, even if you created the database from a personal user account, you can still create a shared account to use for future upgrades:

- For SEP and desktop applications, use the admin utility to create additional accounts that are assigned to the "admin" security group.

- For XFRACAS, use the website's **Admin** tools (**Admin > Configure > Security > Users**) to change the domain\username of the account that was created automatically.

Instructions for upgrading SEP are provided in the Install Update guide that comes with your upgrade package.

6.2 Create or Upgrade the Database

1. Log in to Windows with an appropriate account for your implementation. (Alternatively, you can run the admin utility as that account in step 2).

2. From **Start**, search for "SEP 2020 Admin" and open the admin utility.

3. Click either **New Enterprise Database** or **Upgrade Enterprise Database** and enter the details required to create or upgrade the database.

6.3 Assign Roles in SQL Server for Application Service Account

Finally, if you created a new database on SQL Server, you must make sure the application service account (i.e., the account that the application will use to connect to the database) has the required roles assigned in SQL Server. For requirements, see Section 4 on page 4.

7 Update the SEP Configuration File

After you have installed the website, activated the license and established a database, the next step is to update the configuration file on the web server.

From **Start**, search for "SEP 2020 Admin" and open the admin utility. Then click **Update SEP Configuration File**.

1. On the **Connection** tab:

   - **Connection Info** - Enter the required details for the database that the application will connect to. If you used the admin utility to create the database, the connection info will appear in the fields automatically.

     NOTE: If you are configuring SEP for use with an Oracle database, you must specify a valid service name. Entering an SID may result in slow performance.

     Select **Encrypt Connection String** if you want to hide the connection string information within the web configuration file.

   - **User Impersonation (SQL Server)** - If the database is on SQL Server, enter the credentials that SEP will use to connect. For requirements, see Section 4.

     Select **Encrypt Impersonation Identity** if you want to hide the credentials within the web configuration file.

2. On the **Settings** tab:

   - **Request timeout** sets how long IIS waits for a request to the application to finish processing. Typically, this will not need to be changed for an SEP implementation.

   - **Content-Security-Policy Header** determines which types of dynamic resources are allowed to load on the site. This policy is required to detect and prevent cross-site scripting (XSS) and other code-injection attacks. Typically, it will not need to be changed; however, if you decide to modify this policy, you *must* include the following directives to ensure that the site functions properly:

     - `'unsafe-inline'`
     - `'unsafe-eval'`
     - `img-src 'self' data:`

   - If a Secure Socket Layer (SSL) certificate has been implemented for SEP, select **Yes** for **HTTP Cookies Require SSL** if you also want the browser cookies to require SSL (an additional level of security).

   - For a SQL Server implementation,

     - Select **Encrypt communication** to encrypt the connection between the application and the database.

- Select **Trust server certificate** if the server has a self-signed certificate.

NOTE: To encrypt the connection for an Oracle implementation, you must set the encryption type to either "requested" or "required" for the Oracle database. For more information, please consult the Oracle documentation (e.g., https://docs.oracle.com/cd/B19306_01/network.102/b14268/asoconfg.htm#i1007808).

8 Perform Post-installation Steps (if Applicable)

After installation, you may need to configure additional settings to fit your particular implementation.

To make changes to address OWASP security concerns, see Section 9.

8.1 Set up User Accounts and Permissions

After the database has been created, you can use any of the desktop applications or the ReliaSoft Admin tool to create user accounts and set access permissions. You must create an account for anyone who will be able to edit or view data in the ReliaSoft desktop applications or SEP. (User accounts for XFRACAS are managed separately.)

- In the ReliaSoft Admin tool on the web server, click the **Manage ReliaSoft Users** button.
- In the ReliaSoft desktop applications (e.g., Weibull++, XFMEA, etc.), first open the database and then choose **File > Manage Database > Users and Security**.

If your organization uses Microsoft Active Directory, you can save time by importing user information from the directory to create the user accounts.

For more information, consult the "Security Options" topics in the desktop application help files (e.g., https://help.reliasoft.com/weibull20/index.htm#t=security_options.htm). After the accounts have been created, an application admin can use the SEP Admin page to specify which users can access SEP. (See SEP Admin Page in the SEP help.)

8.2 Start the ReliaSoft Service

The ReliaSoft Service is an optional utility that is installed with SEP. If the application admin(s) want to use the service to send alerts for actions based on calendar date (e.g., when the action is due in X days), you will need to make sure the service is running on the web server. (For instructions on how to configure the settings, see SEP Admin Page in the SEP help.)

To start the ReliaSoft Service on the SEP web server:

1. From **Start**, search for "Services" and open the Services window.
2. In the list of local services, right-click **ReliaSoftService** and select **Properties**.
3. On the **Log On** page, enter the credentials for an account that the service can run as. We recommend using an account that does not expire, such as the application service account discussed in Section 4 on page 4.

4. On the General page, set the **Startup type** to either "Automatic" or "Automatic (Delayed Start)." Then click **Start**.

The current status of the service (Running, Not Running or Not Found) will be displayed on the SEP Admin page. By default, this service is configured to not run from 8 to 10 p.m. each day that can be used for routine database maintenance and backups (**StopProcessingTime** = 20:00:00 and **MinutesToHoldProcessing** = 120). To change these settings, edit serviceConfig.xml on the web server. By default, this file is installed in the "bin" folder for the SEP website (e.g., C:\inetpub\wwwroot\SEP\bin).

8.3 IIS Application Pool Identity

The application admin(s) may determine that SEP needs to display RDW dashboards based on custom connections to external Access databases (or to external SQL Server databases if the ReliaSoft database is on Oracle). If so, you may wish to set a service account (e.g., "SynUser") as the IIS application pool identity (see Section 4). This is not recommended if your website is public.

1. In the **Connections** pane of the IIS Manager, click **Application Pools**.

2. Right-click the website's application pool and choose **Advanced Settings** on the shortcut menu.

3. For the **Identity** property, click the **...** button to open the Application Pool Identity window. Select the **Custom account** option and click **Set** to open the Set Credentials window. Enter the account credentials (domain\username) for the service account and click **OK**.

Note that for Access databases with the *.accdb file type, the RDW dashboard can only be displayed if the database was created with the same version of Microsoft Office (32-bit or 64-bit) that is installed on the web server (for SEP) or on the individual user's computer (for ReliaSoft desktop applications).

To ensure that the RDW dashboard will display regardless of which version of Microsoft Office is installed, use the *.mdb file type instead.

8.4 Release and Recycle Memory

For large systems or systems with a high transactional load, an "Out of Memory" error can occur when the request for pages exceeds the system's capability to release and recycle the memory with the default IIS settings. The settings provided below will force IIS to recycle the memory usage and handle it better so that the "Out of Memory" error does not occur. Note that overly aggressive settings can slow the response of the system. Typically, memory is recycled when the application pool and server are not busy. Forcing memory to recycle more often can consume processor cycle time when the application is still busy, thus slowing system performance. The following settings have been tested to prevent the error from occurring, while posing the minimum possible impact on performance.

1. In the **Connections** pane of the IIS Manager, click **Application Pools**.

2. Right-click the system's application pool and choose **Recycling** on the shortcut menu.

3. In the Application Pool Recycling Settings window that appears, specify the following settings and then click **Next**:

- In the Fixed Intervals area, select **Regular time intervals** and enter **1740**.
- In the Memory Based Maximums area, select **Private memory usage** and enter **1,024,000**.

4. Select to log the following events and click **Finish**:

   - **Regular time intervals**
   - **Private memory usage**
   - **Unhealthy ISAPI**

8.5 HTTPS for Secure Communication

8.5.1 Enable HTTPS

If you want to use HTTPS for secure communication (SSL/TLS) and you already have a certificate for the website (as discussed in Section 3.2 on page 4), do the following:

1. In the **Connections** pane of the IIS Manager, open the **Sites** node under the server name. Click the **Default Web Site**.

2. In the **Actions** area on the right side of the window, click the **Bindings** link and then click the **Add** button in the Site Bindings window that appears.

3. Add a site binding of type https and specify your digital certificate. Close the Site Bindings window.

4. Return to the **Connections** pane and click the **SEP** site.

5. Under IIS, double-click the **SSL Settings** icon. Select **Require SSL** and **Ignore**, then click **Apply**.

8.5.2 Enable TLS 1.2 Protocol for HTTPS (on Windows 2008 or 2012)

If you are using HTTPS for secure communication and you wish to enable TLS 1.2, the same protocol must be enabled for the database server, the web server and .NET on the web server. *(Also note that if you are using a digital certificate, it must be SHA-256 or higher.)*

If your web server and database server are both Windows 2016, the TLS 1.2 protocol will be enabled by default. If either server is Windows 2008 or 2012, add the following registry keys:

```
Windows Registry Editor Version 5.00

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\SecurityProvide
rs\SCHANNEL\Protocols]

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\SecurityProvide
rs\SCHANNEL\Protocols\SSL 2.0]

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\SecurityProvide
rs\SCHANNEL\Protocols\SSL 2.0\Client]

"DisabledByDefault"=dword:00000001
```

```
[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\SecurityProvide
rs\SCHANNEL\Protocols\TLS 1.0]

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\SecurityProvide
rs\SCHANNEL\Protocols\TLS 1.0\Client]

"Enabled"=dword:00000000

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\SecurityProvide
rs\SCHANNEL\Protocols\TLS 1.0\Server]

"Enabled"=dword:00000000

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\SecurityProvide
rs\SCHANNEL\Protocols\TLS 1.1]

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\SecurityProvide
rs\SCHANNEL\Protocols\TLS 1.1\Client]

"DisabledByDefault"=dword:00000000

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\SecurityProvide
rs\SCHANNEL\Protocols\TLS 1.1\Server]

"DisabledByDefault"=dword:00000000

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\SecurityProvide
rs\SCHANNEL\Protocols\TLS 1.2]

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\SecurityProvide
rs\SCHANNEL\Protocols\TLS 1.2\Client]

"DisabledByDefault"=dword:00000000

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\SecurityProvide
rs\SCHANNEL\Protocols\TLS 1.2\Server]

"DisabledByDefault"=dword:00000000
```

8.6 Configure Remote ReliaSoft

Remote ReliaSoft allows you to configure SEP to run ReliaSoft desktop applications on one or more remote servers, eliminating the need to install and update software on each client computer. This section describes the minimum requirements for setting up the server(s) and generating a connection file for Remote ReliaSoft.

8.6.1 Requirements

- A Windows server that can be configured with Microsoft Remote Desktop Services (RDS) and RDP RemoteApp, or multiple RDS servers and a “broker” that distributes the requests. When planning your

hardware requirements, you can estimate the following typical memory requirements per application per session. For example, a server with 32 GB RAM could support approximately 30 simultaneous ALTA users, or 100 simultaneous Lambda Predict users, and so on.

Application	Estimated Memory Requirement per Session (MB)
ALTA	1000
RGA	1000
Weibull++	900
BlockSim	500
XFMEA	400
RCM++	400
RBI	300
MPC	300
Lambda Predict	300

- Sufficient RDS license seats (purchased from your preferred Microsoft vendor).
- ReliaSoft desktop applications installed and kept up-to-date on the RDS server(s). Locally hosted licensing is recommended (token-based or floating). If you do not already have a locally hosted license server for ReliaSoft and nCode software, see instructions at https://www.reliasoft.com/locally-hosted-licensing.

8.6.2 Set Up the RDS Server(s) and Create a Connection File

Note that this document provides partial instructions focused on the settings that will affect your ability to generate a connection file that can be used within SEP. If you are not familiar with the steps required to install and configure RDS, you may need to consult documentation/support provided by Microsoft.

1. Install the ReliaSoft desktop applications and configure the locally hosted licensing.
2. In the Windows Server Manager, make sure the required RDS roles are installed:

Windows 2016 or 2012	Windows 2008
Remote Desktop Session Host Remote Desktop Connection Broker Remote Desktop Web Access	Remote Desktop Session Host Remote Desktop Services Manager Remote App Manager

3. In Remote Desktop Session Host, configure your Remote Desktop license (CALs) and any other settings that are appropriate for your implementation.
4. Add the ReliaSoft Launcher as a published RemoteApp program.
    - In Windows 2016 or 2012, in the Windows Server Manager under Remote Desktop Services, create a Session Collection. In the collection, use Publish RemoteApp Programs and follow the wizard. In the Properties window, make sure the **Parameters** setting is set to "Allow any command line parameters."

- In Windows 2008, follow the wizard in the RemoteApp Manager. Make sure **Arguments** is set to "Unrestricted."

5. Create and save an *.rdp file that contains the connection information for the ReliaSoft Launcher.

   - In Windows 2016 or 2012, open RDWeb (e.g., https://servername/RDWeb) in a web browser (other than Internet Explorer) and save the connection file.

   - In Windows 2008, click the **Create .rdp File** link in the RemoteApp Manager.

     Note: SEP will use the *.rdp file that you provide as a template, and it will add settings that allow the ReliaSoft Launcher to open a specific ReliaSoft application, project and analysis. If your RDS server is configured to use digital certificates, you may need to edit the file (in Notepad or another text editor) before uploading to SEP. Specifically, if a certificate was added to the end of the file, it must be removed.

8.6.3 Enable Remote ReliaSoft

Remote ReliaSoft is now ready to be enabled on the SEP Admin page. (See SEP Admin Page in the SEP help.)

9 Additional IIS Configuration Changes for Enhanced Security

This section provides recommendations to address issues that may be identified if you choose to scan your web server for Open Web Application Security Project (OWASP) security concerns.

For some of the issues listed here, you will need to install the URL Rewrite tool, available at http://www.iis.net/downloads/microsoft/url-rewrite.

9.1 Settings

The tasks performed in the IIS Manager should be done at the default website level (i.e., in the **Connections** pane, open the **Sites** node under the server name and click **Default Web Site**). Alternatively, the model web.config code (see page 16) summarizes the changes made in the IIS Manager.

Note: If you make these changes directly in the web.config file in the root folder for your SEP website, you can skip the steps shown below in italics.

Web Server Default Welcome Page

From the wwwroot directory, remove iisstart.htm, welcome.png and the asp_client folder.

Clickjacking: X-Frame-Options Header Missing

1. *In the IIS Manager Home page, double-click **HTTP Response Headers**.*

2. *In the **Actions** area, click **Add**. Enter **X-Frame-Options** as the name, and **SAMEORIGIN** as the value.*

OPTIONS Method Is Enabled

1. *In the IIS Manager Home page, double-click **Request Filtering**.*

2. *On the **HTTP Verbs** tab, click **Allow Verb** in the **Actions** area and enter **Options** in the Deny Verb window.*

Microsoft IIS Version Disclosure

1. In the following Registry key, create a dWORD entry, DisableServerHeader, and set its value to 1:

   `HKLM\SYSTEM\CurrentControlSet\Services\HTTP\Parameters`

2. In the IIS Manager Home page, double-click **URL Rewrite**.

3. In the **Actions** area, click **View Server Variables**, then click **Add** and enter **RESPONSE_SERVER** in the text box.

4. *Add an outbound rule to rewrite the RESPONSE_SERVER server variable as blank.*

   a. *In the **Actions** area, click **Back to Rules** and then click **Add Rule(s)**.*

   b. *In the Add Rule(s) window, click **Blank rule** in the **Outbound rules** category and click **OK**.*

   c. *Create the outbound rule using the following settings:*

      - *Name: Response Server*
      - *Precondition: None*
      - *Matching scope: Server Variable*
      - *Variable name: RESPONSE_SERVER*
      - *Variable value: Matches the Pattern*
      - *Using: Regular Expressions*
      - *Pattern: .+*
      - *Action type: Rewrite*
      - *Action Properties:*
        - *Value: <leave this field empty>*
        - *Replace existing server variable value: Selected*

ASP .NET Version Disclosure

1. In the IIS Manager Home page, double-click **URL Rewrite**.

2. In the **Actions** area, click **View Server Variables**, then click **Add** and enter **RESPONSE_X-ASPNET-VERSION** in the text box.

3. *Add an outbound rule to rewrite the RESPONSE_X-ASPNET-VERSION server variable as blank.*

   a. *In the **Actions** area, click **Back to Rules** and then click **Add Rule(s)**.*

   b. *In the Add Rule(s) window, click **Blank rule** in the **Outbound rules** category and click **OK**.*

   c. *Create the outbound rule using the following settings:*

      - *Name: x-ASPNet*
      - *Precondition: None*
      - *Matching scope: Server Variable*
      - *Variable name: RESPONSE_X-ASPNET-VERSION*
      - *Variable value: Matches the Pattern*
      - *Using: Regular Expressions*
      - *Pattern: .+*
      - *Action type: Rewrite*
      - *Action Properties:*
        - *Value: <leave this field empty>*
        - *Replace existing server variable value: Selected*

X-Powered-By Header

1. In the IIS Manager Home page, double-click **HTTP Response Headers**.

2. Select the **X-Powered-By** header and click **Remove**.

3. In the IIS Manager Home page, double-click **URL Rewrite**.

4. In the **Actions** area, click **View Server Variables**, then click **Add** and enter **RESPONSE_X-POWERED-BY** in the text box.

5. *Add an outbound rule to rewrite the RESPONSE_X-POWERED-BY server variable as blank.*

   a. *In the **Actions** area, click **Back to Rules** and then click **Add Rule(s)**.*

   b. *In the Add Rule(s) window, click **Blank rule** in the **Outbound rules** category and click **OK**.*

   c. *Create the outbound rule using the following settings:*

      - *Name: X-Powered*
      - *Precondition: None*
      - *Matching scope: Server Variable*
      - *Variable name: RESPONSE_X-POWERED-BY*
      - *Variable value: Matches the Pattern*
      - *Using: Regular Expressions*
      - *Pattern: .+*
      - *Action type: Rewrite*
      - *Action Properties:*

- *Value: <leave this field empty>*
- *Replace existing server variable value: Selected*

Custom Errors

1. In the IIS Manager, open the Configuration Editor.

2. In the **Section** drop-down list, choose **system.web/customErrors**.

3. Set **Mode** to **RemoteOnly**.

9.2 Default web.config Changes

```
<?xml version="1.0" encoding="UTF-8"?>
<configuration>
        <system.web>
                <customErrors mode="RemoteOnly">
                </customErrors>
        </system.web>
  <system.webServer>
    <httpProtocol>
      <customHeaders>
        <remove name="X-Powered-By" />
                <add name="X-Frame-Options" value="SAMEORIGIN" />
      </customHeaders>
    </httpProtocol>
    <security>
      <requestFiltering>
        <verbs>
          <add verb="OPTIONS" allowed="false" />
        </verbs>
      </requestFiltering>
    </security>
    <rewrite>
      <outboundRules>
        <rule name="Response Server">
          <match serverVariable="RESPONSE_SERVER" pattern=".+" />
          <action type="Rewrite" />
        </rule>
        <rule name="X-Powered">
          <match serverVariable="RESPONSE_X-POWERED-BY" pattern=".+" />
          <action type="Rewrite" />
        </rule>
        <rule name="x-ASPNet">
          <match serverVariable="RESPONSE_X-ASPNET-VERSION" pattern=".+" />
          <action type="Rewrite" />
        </rule>
      </outboundRules>
    </rewrite>
```

```
    </system.webServer>
</configuration>
```

10 FAQs

Can we implement replication for a ReliaSoft database?

XFRACAS, SEP and the ReliaSoft desktop applications cannot be deployed with bi-directional database replication (*peer-to-peer replication* or *merge replication*). The applications are designed for use with a single back-end database; they do not handle conflict detection and resolution.

It may be possible to use a ReliaSoft database with uni-directional replication (*transactional replication* or *snapshot replication*). However, this is likely to affect the performance of the application(s) and you must test on your own to evaluate the impact in your particular situation. **This type of use is not recommended or supported by ReliaSoft**.

For the purpose of disaster recovery, we recommend to establish a regular schedule for *database backups* and *transaction log backups*. These backups can be stored in a location that is protected from potential failure of the application's database server. If an issue occurs, you can restore the most recent database backup (e.g., nightly) and then restore subsequent transaction logs up to the point right before the failure.