ELECTRONIC STAFF RECORD

ESR-NHS0359 - Java Web Start (JWS) Implementation Guidance

Information classification: PUBLIC

Owner:

Author: James Haddon

Creation date: November 2021

Date of latest update: May 2022

Version number: 2.0

Approvals:

Name	Lee Pacey
Title	Director of Operations
Date	

Name	
Title	
Date	

Document Control

Change Record

Date	Author	Version	Change Reference
01/10/2021	James Haddon	0.1	Initial Draft
15/11/2021	James Haddon	1.0	Published
16/12/2021	James Haddon	1.1	Updated guidance for trusted url and updated FAQs
09/05/2022	James Haddon	2.0	Updated Classification

Reviewers

Name	Position
NHS ESR Development Team	

Distribution / Location

Copy No. / Version	Name	Location

References

Reference	Name	Location

Glossary

Term	Definition

Contents

1   Introduction

1.1   Scope and Purpose

This document aims to detail the changes required in order to enable ESR and related smartcard reader software to work together to authenticate users using modern browsers.

1.2   Background

Currently the only browser that is a supported method of either accessing ESR professional forms, and/or authenticating with a smartcard is Microsoft Internet Explorer 11. This is because both ESR and the NHS Digital Identity Agent use Java Applets (via the NPAPI plugin) to launch the required functionality.

Most modern browsers no longer support Java applets and applets were completely removed from Java in later versions. In addition, Microsoft announced in 2021 that support for Internet Explorer 11 would come to an end on 15th June 2022.

Therefore, a number of changes were progressed to ensure both Smartcard Authentication and ESR Professional forms can launch successfully on browsers other than IE11, specifically Edge (Chromium) and Chrome. The two largest changes are:

- NHS Digital development of NHS Credential Management (to allow authentication without Java applets using a locally hosted web server instead)
- Enablement of Java Web Start in ESR (to allow Java forms to be launched without a Java applet).

1.3   NHS Credential Management

The NHS Credential Manager developed by NHS Digital is an alternative method of communicating with a smartcard in order to authenticate a user. NHS Digital decided to create an application which creates a self hosted local web server in order for other systems (e.g. ESR) to communicate with it. This application is called NHS Credential Management and replaces all Java applets currently used by the NHS for authentication. Installed along with NHS Credential Management application (in the same installer) is the NHS Port Service, which allows NHS Credential Management to be used on machines with multiple users logged in at once (ie: Terminal Services, Citrix, fast user switching scenarios etc).

Further details of NHS Credential Management can be found in the user guidance available alongside the download link in the required software section later in this document.

1.4 Java Web Start

Java Web Start (JWS) is an alternative method of initiating Oracle Java Forms which has been enabled in ESR. Previously a Java applet was executed within the browser, and from there the full Java application was launched.

Java Web Start works differently – when the user wishes to launch a Java Form in ESR, a file will be downloaded in their browser with the extension .jlnp. By default, .jnlp files are associated with Java when Java is installed on the client machine. Therefore, when the user opens the .jnlp file, it will launch the Java application – in this instance, an ESR professional Java based form.

In ESR, although the ability to use Java Web Start has been made available, users must 'opt in' to using JWS using a portlet on the ESR portal (shown in section 3 of this document).

2 Software / Network Requirements

2.1 Summary

The following high level steps are required in order to ensure the client machines are able to read a smartcard to communicate with ESR, as well as launch forms in ESR using a browser other than IE11. Organisations should ensure:

1) Identity Agent v2.3 or above is installed and configured (Section 2.2 below)

2) Trusted URLs are allowed through any proxy or firewall software (Section 2.4.1 below)

3) A minimum of Java JRE version 1.8.0_261 is installed (check with document MM-0100 for the latest supported version)

4) Configuration is applied to browsers to ensure jnlp files are automatically downloaded and executed when accessed from ESR (section 2.4.2 below)

2.2 Smartcard Reader

The following software is required to ensure ESR can communicate with the smartcard reader:

1) NHS Credential Management (this includes the NHS Port service)

2) NHS Identity Agent v2.3 or above

Both of these can be downloaded alongside user guidance from [NHS Digital here](#).

2.3 Professional Forms

No other additional software is required to ensure ESR professional forms will launch correctly from browsers other than IE11, however JRE version 1.8.0_261 is the supported version tested to ensure compatibility as per the MM-0100 document (available on the ESR Hub).

2.4 Configuration

2.4.1 Networks

Organisations should ensure that the following address is allowed through any local firewall or proxy services:

trustedurl.national.ncrs.nhs.uk

If this address is blocked, this may be evident in the file at the address below:

C:\ProgramData\HSCIC\NHS Port Service\NHSPortService.log

To test, organisations can attempt to access the following address which should initiate a file download: https://trustedurl.national.ncrs.nhs.uk/api/versioninfo

The file that is downloaded can be ignored, but a successful download means that the connection was established."

2.4.2 Browsers

Rather than requiring the user to open the downloaded .jnlp file from the browser, it is possible to configure the browser to automatically open these files.

Microsoft Edge has the registry entries below that control the behaviour:

[HKEY_LOCAL_MACHINE\SOFTWARE\Policies\Microsoft\Edge\AutoOpenFileTypes]

[HKEY_LOCAL_MACHINE\SOFTWARE\Policies\Microsoft\Edge\AutoOpenAllowedForURLs]

[HKEY_LOCAL_MACHINE\SOFTWARE\Policies\Microsoft\Edge\ExemptDomainFileTypePairsFrom FileTypeDownloadWarnings]

These can be set as below to ensure the jnlp files are opened automatically to make it easier for users to launch the Java forms:

[HKEY_LOCAL_MACHINE\SOFTWARE\Policies\Microsoft\Edge\AutoOpenFileTypes\

Value Name: 1

Value: jnlp

[HKEY_LOCAL_MACHINE\SOFTWARE\Policies\Microsoft\Edge\AutoOpenAllowedForURLs]

Value Name: 1

Value: my.esr.nhs.uk

[HKEY_LOCAL_MACHINE\SOFTWARE\Policies\Microsoft\Edge\ExemptDomainFileTypePairsFrom FileTypeDownloadWarnings]

Value Name: 1

Value: {"domains": ["my.esr.nhs.uk"], "file_extension": "jnlp"}

Screenshot examples:
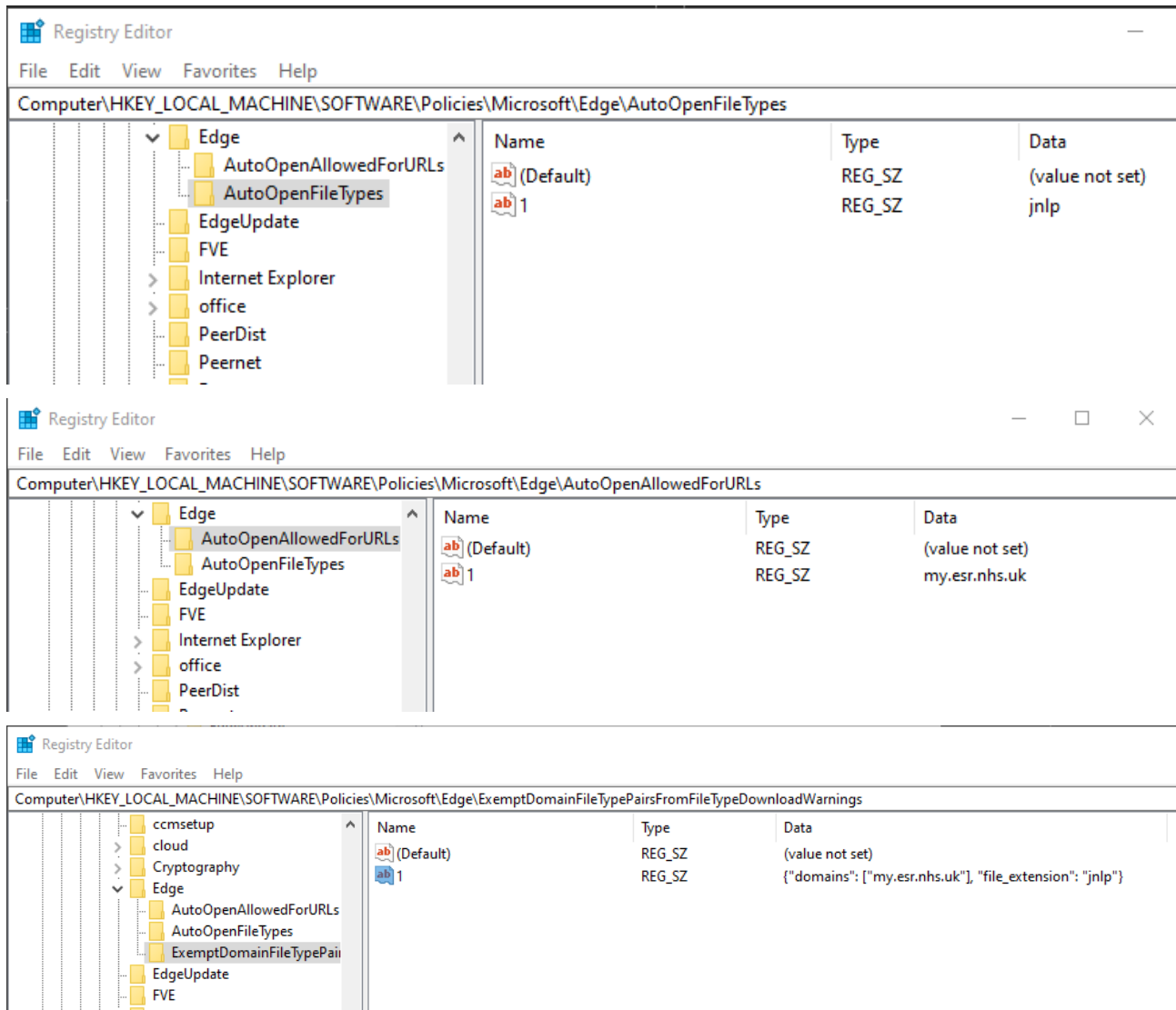
You can check these policies are being applied in Microsoft Edge by opening the address "edge://policy/" within edge itself. You should then see the policies in place:

Policy Name	Policy Value	Source	Applies To	Level	Status	
AutoOpenAllowedForURLs	my.esr.nhs.uk	Platform	Device	Mandatory	OK	⌄
AutoOpenFileTypes	jnlp	Platform	Device	Mandatory	OK	⌄
ExemptDomainFileTypePairsFromFileTypeDownloadWarnings	{ "domains": ["my.esr.nhs.uk"], "file_extension": "jnlp" }	Platform	Device	Mandatory	OK	⌄
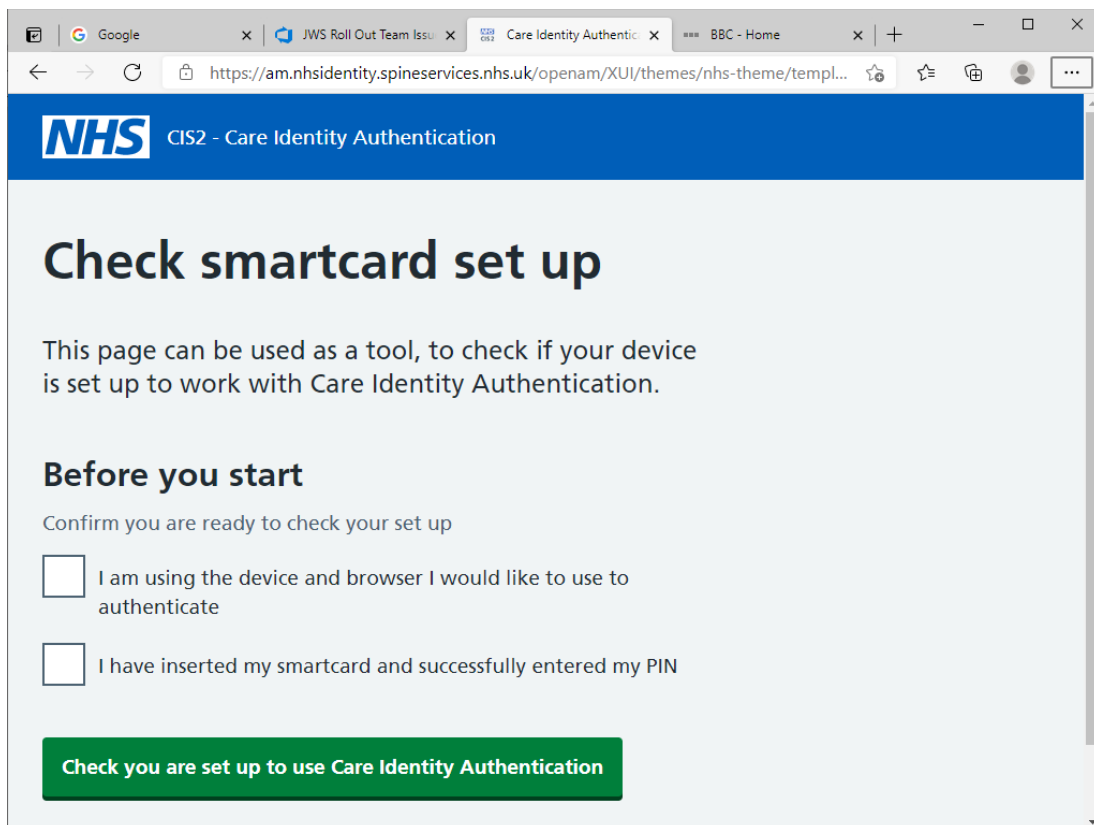
2.5   Testing

In order to authenticate a user using their smartcard using a browser other than IE11, you must have the following installed and running:

1. NHS Port Service
2. NHS Credential Management Software
3. NHS Identity Agent

To test whether the authentication is working correctly, the address below can be used.

Care Identity Authentication (spineservices.nhs.uk)

---

3   Opting In and Using Java-Based Professional Forms

3.1   Opting in to using the new Java Launcher

A new Portlet that can be displayed on the ESR portal has been developed that allows users to opt in to running professional ESR forms using the new Java launching method (known as Java Web Start) from browsers other than Internet Explorer 11 such as Microsoft Edge and Google Chrome.

The portlet provides buttons that allow the user to enable or disable this new Java forms launcher where required.

By default the portlet will not be displayed on any dashboards – when your organisation is in a position to start using this functionality, it can be added by publishing to the required dashboard(s) as below:
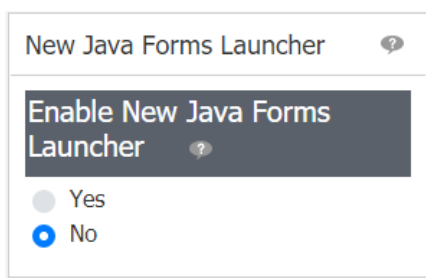
ESR Portal > + icon (top right corner) > NHS ESR Common Portlets > New Java Forms Launcher > Add

Note: A user must have the 'XXX Portal Site Administrator' URP to have access to do this.

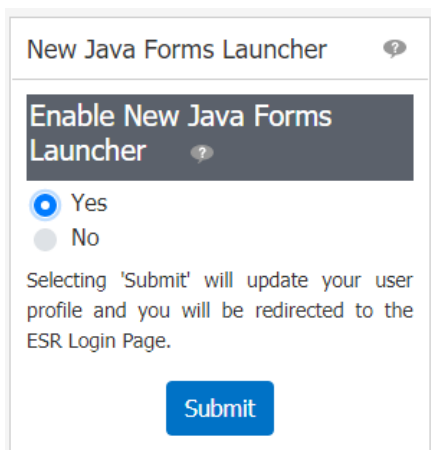The portlet may be added to the following dashboards only:

- HR
- Recruitment
- Learning
- Payroll
- Professional

Once the portlet has become available a user will be able to start using the new Java launcher to access professional forms within ESR.

When a user selects 'Yes' within the Portlet the following will be displayed:
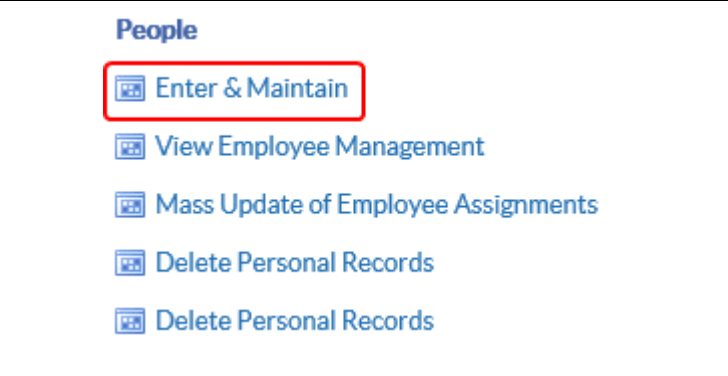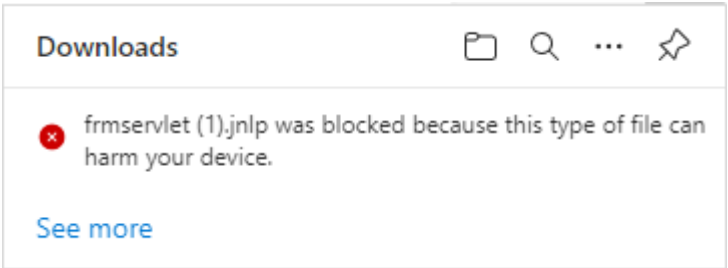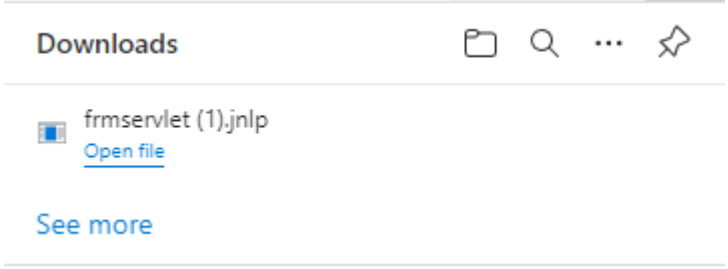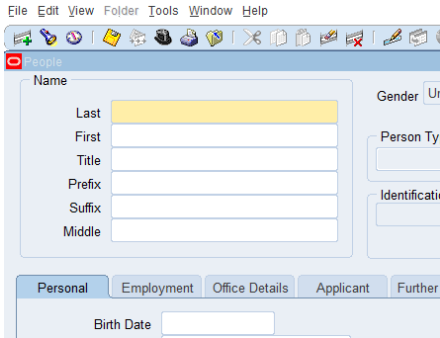
Once 'Submit' has been selected the user will be directed to the ESR login page. They will then be required to login again – once they have, they can then access a Java form in the usual way albeit with a slight change to the way the form opens (listed in the next section).

3.2   Launching Java Forms

Once the user has opted in to use the new method of launching Java forms in ESR, the following table shows the process the user will follow to launch the forms.

Step	Description	Screenshot
1	Navigate to the required form (Enter & Maintain in this example)	**People**
2	A file will be downloaded with the extension .jlnp. This will occur **every time** a Java form is launched, therefore it is preferable to implement the changes in section 2.3.2. to ensure the download is opened automatically. Note: Depending on the browser, this may be blocked. As in this example, you may need to click 'See more' and select 'Keep File'	
3	Open the file	

4	A Java window is displayed	
5	The form is then displayed	

4   <u>Backwards Compatibility</u>

4.1   <u>Smartcard Software</u>

NHS Identity Agent v2.3 is backwards compatible with IE11 as well as working with non-IE browsers such as Edge and Chrome, therefore this may be installed in readiness for using the new Java forms launcher without any impact on the user's ability to access the forms.

The new Java forms launcher itself is expected to work with IE11 (although this configuration is not supported).
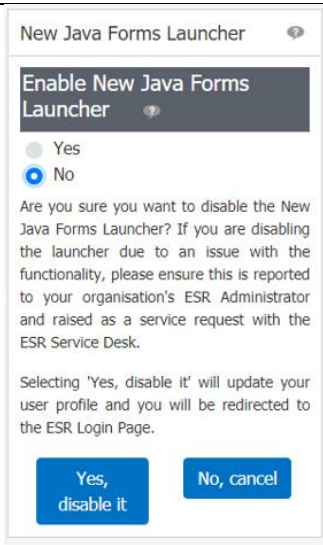
5   Troubleshooting

5.1   Switching off the new Java launcher (JWS)

Should users find an issue that means the Java based forms will not load for them using the new Java forms launcher (JWS), then users may temporarily disable it whilst troubleshooting takes place.

Note: It is important that the user raises any issue(s) they have experienced via the ESR Service Desk – a user should only revert back if they are experiencing issues and are ultimately unable to launch the ESR professional forms.

To disable JWS:

Step	Description	Screenshot
1	Select 'No' on the Java Launcher Portlet, then click 'Yes, disable it'	
2	The user will be logged out and should then log back in again using IE11. When they do, they will now be able to launch the Java forms in the same way as they previously did.	

5.2   Common Resolutions

The following issues have been seen previously with suggested resolutions.

1) NHS Port Service will not start

Should this occur, try deleting the files below from this directory: "C:\Program Files (x86)\NHS Digital\NHS Port Service"

- PortStore.txt
- DomainList.txt

5.3   Support and Feedback

Should you have any issues with implementing the changes required as detailed above, please raise a service request (SR) with the ESR Service Desk, fully detailing the problem and ensuring you take a note of the SR number.

It would be appreciated if organisations can feed back to the NHS ESR Central Team (both positively and negatively) on progress with implementing the changes to the email address: esr.jws@nhs.net. If you have raised an SR with the service desk, please include the SR number in the email.

5.4   Frequently Asked Questions

1) Q: If the portlet is required to turn on or off the use of JWS, then in the event of a problem with JWS, a user cannot turn it off without logging in so how would a smartcard user turn it off if they can't login?

   A: The portlet only controls the method of the professional forms launching, it does not control the method by which a smartcard is authenticated. The smartcard authentication method is controlled by the browser being used. If this is IE11 (or Edge in IE11 mode) then the method used will be the Java applet as these are supported. Any other browser will use the new authentication method of Credential Manager and NHS Port Service. Therefore because the portlet does not need JWS to access it, the setting can be changed even if organisations are experiencing issues.

2) Q: If we setup a client machine with IA v2.3 and Credential Manager, does that mean the user has to have opted in to use JWS in order to use ESR?

   A: No. The smartcard authentication method is controlled by the browser being used. If this is IE11 (or Edge in IE11 mode) then the method used will be the Java applet as these are supported. Any other browser will use the new authentication method of Credential Manager and NHS Port Service. When using ESR, if the person is opted in to use JWS, then the professional forms will be launched using the new jnlp file download method. If they are not opted in, then the system will attempt to launch using a Java applet however this will only succeed if they are using IE11 (or Edge in 11 mode).

3) Q: Does this update mean that users must use a browser other than IE11?

   A: It is not mandatory but is recommended. IA v2.3 will continue to work with IE11 (authenticating via Java applet). JWS is also expected to work with IE11 although it is not supported. Organisations should consider moving from IE11 by June 2022 as Microsoft has indicated support will be removed at this time.