



"PACKAGED BROWSER" SOLUTION

Using Adobe® Flash® Player to support existing Flex® applications

A solution available under a commercial license from HARMAN Connected Services.
[Contact for more information.](#)

BACKGROUND

Adobe® and the main browser vendors announced in 2017 that the Flash® Player browser plug-in would not be supported beyond the end of 2020. This means that Adobe® will cease supporting the Flash® Player (it will no longer be available for download from their website) and the browser vendors will update the browsers to remove support for loading native plug-ins.

Existing web-based applications that use Flash® will therefore no longer be accessible through a standard browser. Companies have been migrating their Flex® and Flash®-based content onto other technologies over the past few years; however a significant number of Flash® applications still remain in use today.

MITIGATIONS

There are a few options that exist to continue accessing Flash® based applications beyond 2020 as well as options to migrate existing content to HTML technologies – which HARMAN has been supporting and are still able to support as part of our web application services group, who have expertise with Flex® migration projects.

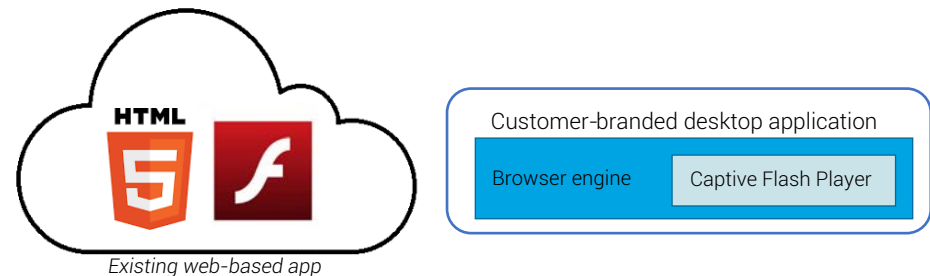
One option may be to use Adobe® AIR®. This is an application runtime that uses a similar engine as the Flash® Player browser plug-in and can often open and run web-based Flash® content with only minor modification. This could be an option where the applications are purely Flash®-based i.e. do not have much interaction with the surrounding HTML or JavaScript content in the website that hosts them.

HARMAN is now providing platform support and feature development of the AIR® software and more details on this can be found at the [webpage](#).

Where enterprise applications are a mixture of web (HTML/JavaScript) and Flash® (or Flex®) content, AIR® is unlikely to provide the full capabilities and so HARMAN is offering the “Packaged Browser” solution as a customized software product that allows an existing Flash®-based web application to be accessed remotely beyond 2020.

OVERVIEW

The “Packaged Browser” is essentially an application that hosts a browser engine along with HARMAN's build of the Flash® Player, and is locked to your web based Flash® application taking on the appropriate branding. It is deployed as a separate application, so it needs to be installed by an end user and accessed as a desktop application but could be considered as similar to a browser tab without the navigational UI and with a Flash® Player isolated from the rest of the system.



The Packaged Browser application works by loading in the appropriate browser engine and directing this to the predefined URL that hosts the web-based application. The browser engine then loads the custom version of the Flash® Player as provided under license by HARMAN. The web based application is then displayed as if it were running in a normal web page.

TECHNICAL DETAILS

The Packaged Browser is available in two variants:

- Using the Microsoft "WebBrowser" ActiveX control in order to render the web-based content. This then loads the ActiveX version of the Flash® Player and is only available for Windows platforms. The "WebBrowser" control is loaded from the host machine, HARMAN does not distribute this component.
- Using the "Electron.js" application to load in a Chromium engine for rendering the web-based content. This then loads the PPAPI ("Pepper") version of the Flash® Player and is available for Windows, MacOS and Linux. The Chromium engine is part of the distributable application so this solution is independent of any other updates.

	Windows/ActiveX	Windows/PPAPI	MacOS/PPAPI	Linux/PPAPI
Operating System version	Windows 7 or later	Windows 7 or later	macOS 10.10 or later	Ubuntu 12.04 or later
CPU architecture (Intel architectures)	32-bit or 64-bit	32-bit or 64-bit	64-bit only	32-bit or 64-bit
Installation mechanism	MSI file	MSI file	PKG file	DEB file

HARMAN provides a customized installer for each customer.

Customizations include the name of the application and its icon, as well as details such as the default location for installation and the language use (for MSI installers).

Optional Features:

- The URL to be loaded by the web browser at the start can be customized either by passing this in as a command-line parameter (for example using a shortcut on Windows), or by creating a configuration file.

- IE version compatibility can be set up as required – see ['FEATURE_BROWSER_EMULATION'](#)
- Debugger versions can be provided if required – including the availability of 'developer tools' for the Chromium engine embedded with the PPAPI versions, plus compatibility with the Flash® Debugger.

Restrictions:

- Adobe® requires the Flash® Player to be restricted, so that it is limited with respect to the set of content that can be opened. The provided plug-in cannot be used in a general-purpose browser or used to access any user defined URL. Instead, HARMAN will provide a version of the Flash® Player that is restricted using a mechanism to be discussed and agreed on a case by case basis.
- HARMAN does not have a license to distribute the Flash® Player in China so this solution cannot be used or deployed there. Adobe® has a separate agreement with a distributor in China and different rules apply.
- The Web Browser control is provided by Microsoft and not distributed by HARMAN; this component is therefore outside of HARMAN's control and operating system updates have the potential to affect this. HARMAN does not anticipate there being any problem with this working model.

The Flash® Player plug-in is built by HARMAN under the source code license agreement between HARMAN and Adobe®. There are limitations in the functionality provided in HARMAN's version of the Flash® Player due to not having the rights to the DRM software or the software a/v codecs that are embedded within Adobe®'s Flash® Player: this means that DRM (Flash® Access or RTMPe) is not available, and there may be issues with H.264 video and AAC audio (these capabilities should now be provided via the operating system libraries).

Security and Updates:

- The intention of the restrictions in the content that the Flash® Player loads is to remove the possibility of an end user accidentally accessing a malicious piece of Flash® content. The attack vectors are therefore massively reduced: the only content that the Flash® Player should be directed at and will load should be content within the direct control of the application vendor.
- HARMAN will be maintaining the Flash® Player and will provide updates as/when necessary throughout the licensing period for each customer. This does include security patches should any critical vulnerability be raised. Current expectations are for a quarterly release cycle; it is then up to customers to choose whether to distribute the updates to their end users.

Adobe, AIR, Flash and Flex are either registered trademarks or trademarks of Adobe in the United States and/or other countries.

ABOUT HARMAN

HARMAN (harman.com) designs and engineers connected products and solutions for automakers, consumers, and enterprises worldwide, including connected car systems, audio and visual products, enterprise automation solutions; and services supporting the Internet of Things. With leading brands including AKG®, Harman Kardon®, Infinity®, JBL®, Lexicon®, Mark Levinson® and Revel®, HARMAN is admired by audiophiles, musicians and the entertainment venues where they perform around the world. More than 50 million automobiles on the road today are equipped with HARMAN audio and connected car systems. Our software services power billions of mobile devices and systems that are connected, integrated and secure across all platforms, from work and home to car and mobile. HARMAN has a workforce of approximately 30,000 people across the Americas, Europe, and Asia. In 2017, HARMAN became a wholly-owned subsidiary of Samsung Electronics Co., Ltd.

© 2020 HARMAN International Industries, Incorporated. All rights reserved. Harman Kardon, Infinity, JBL, Lexicon and Mark Levinson are trademarks of HARMAN International Industries, Incorporated, registered in the United States and/or other countries. AKG is a trademark of AKG Acoustics GmbH, registered in the United States and/or other countries. Features, specifications and appearance are subject to change without notice.

