

Automated cloud-based software maintenance service and installer for Windows production software

Purpose of the internship

We have a software product in production called VECMAP. VECMAP is a data collection and risk mapping professional software solution for researchers and public body decision makers. It includes a web app component, a mobile app component, a desktop application component, and a back-end on our servers. The desktop application component does not currently have an automated update service, it is manually installed using an Inno Setup installer with custom code.

We would like the software to be installed instead using a MSI package, with all included existing dependencies and customizations. This will be more friendly to Enterprise environments with automated software distribution systems. The MSI should also be delivered and kept up to date by a new automated software update system for our product. A web service running in the cloud – provided by a serverless cloud function – should allow our software to check for new versions, provide a download for a new MSI package – from cloud storage – and take care of initiating the installation. Various environmental exceptions need to be taken into account such as administrator rights on the computer, failed downloads and resume.

Your responsibilities

You will be responsible for reimplementing our software installer from Inno Setup with custom scripting to WiX toolset, designing and implementing an automated cloud-based software update service for our existing desktop application.

- You create a new MSI based installer that performs the same custom installation steps as the current Inno Setup based installer
- You write a serverless function that checks for the latest available version
 - The service reads a JSON update definition structure – will be provided
 - The update version to provide can depend on the current version (incremental updates)
 - The update version to provide can depend on the customer identification – provide certain patches only to certain customers
- You write a serverless function that allows the desktop application to download the appropriate installer from the cloud
- You integrate the new software update service into the existing Windows Forms desktop application, including UI for update notifications and update downloads/resume
- You provide documentation for the new software installer design, the update service design and implementation, and the code contributed to the desktop application

The MSI package will be created using WiX toolset. All serverless functions will run on Amazon Web Services, using AWS Lambda. New versions of the application will be made available on AWS S3 cloud storage, the serverless functions will provide the download link from S3 to the desktop application.

The WiX toolset uses a custom XML format. Code contributed to the desktop application is written in C# 7 for .NET Framework Windows Forms. Your code for the serverless functions will be written using .NET Core 3.0 C# 8.

As an optional extra a workflow can be developed where patches (msp) can be created and provided as delta updates instead of always requiring a full package (msi).

Expected result

To have a WiX toolset-based workflow that can be initiated with minimal manual interaction to create new MSI based installers based on our software builds, and that is ready to be integrated into any kind of CD chain.

The MSI packages generated install our software on supported Windows systems with all requirements and customization as required by our software.

A cloud serverless service is set up and functional ready-to-use that provides an update check service and installer packages for download.

The update service is integrated into our existing desktop application in a clean and professional manner with commented source code. It checks the service for software updates, provides the required UIs to notify the user and allow to download a new installer package, and take care of initiating the installation, taking into account environment exceptions. The new version that includes the update service is properly tested and also tested to make sure no new bugs are introduced elsewhere in the software.

All deliverables are properly documented in their design and operation.