

Introduction

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Factory Floor processes related to inserting a product key into a Windows installation are described in this guide. For details regarding obtaining digital product keys (DPK) through MDOS, please refer to the MDOS documentation at this link: <https://aka.ms/mdos-user-guide>

This document describes the process for Microsoft Authorized Refurbishers (MAR) to complete Windows Product Key Entry (PKEA) on devices they refurbish using a DPK. Topics are related to Microsoft Digital Operations Services (MDOS) and inserting the Windows activation product key into Windows 10 installations, in the factory, so that the end user is not required to enter a product key. Additionally, inserting a DPK in the factory eliminates the need to purchase and attach Certificates of Authenticity (COA) to the devices being refurbished.

This document does not describe OA3.0 (OEM Activation 3.0), where the product key gets injected into the device firmware. Instead, a DPK will be inserted into the Windows installation using the methods described in this guide.

This guide will also describe the process of building a Computer Build Report (CBR) using the OEM Activation Tool (OA3Tool.exe), for use in gathering device details and to generate a report file for each device in compliance with program reporting requirements.

This document includes guidance related to sample scripts and tools which are intended to serve as an example for how you can automate the process for managing digital product key inventories, insertion of digital product keys into a Windows 10 operating system and the building and submission of computer build reports. Sample scripts are as-is tools and are offered without warranty either express or implied. Microsoft will provide guidance and support for the sample script in its released form to the extent of resolving product defects and bugs, however, customization, implementation, and integration remains your responsibility and Microsoft assumes no responsibility in that effort.

How to obtain Digital Licenses

Digital product keys are ordered through the MDOS platform. You must order a unique digital product key for every device you wish to refurbish. Refer to section the MDOS documentation for details on ordering digital licenses through the MDOS platform located at this link:

<https://aka.ms/MDOS-User-Guide>.

Install and configure MDOS Smart Client (MSC)

You will need to download, install, and configure the MDOS Smart Client (MSC) before you can begin managing DPKs with device installations. Refer to section the MDOS documentation for details on ordering digital licenses through the MDOS platform located at this link: <https://aka.ms/MDOS-User-Guide>.

Product Key Insertion

Microsoft has developed a sample script which can be used to automate the product key insertion process, as well as manage which keys you have obtained from the MDOS system and additionally for building and reporting the Computer Build Reports (CBR) to Microsoft through the MDOS system. This section describes how to implement the MARXpress sample script in your production environment.

MARXpress sample tool

The MARXpress sample tool can be used to manage product key insertion into a Windows 10 installation, after you have obtained a digital product key using the instructions provided below.

This section describes how to implement the MARXpress sample script into your production environment and is intended to provide details of how to install, configure and deploy the MARXpress sample tool for use with the Digital MAR products. This section has been written from the viewpoint of mainly targeting two kinds of readers:

1. A line master/factory floor lead who is responsible for the setup and configuration of all tools used during the build process and distribution of tools to the production line;
2. A line worker/factory floor worker who is responsible for the MAR device build execution.

The sample tool referenced in this guide serves as an example tool to automate the deployment of digital MAR product keys to refurbished devices and generate the required report information for submission to Microsoft.

For detailed instructions to submit a CBR through MDOS, refer to the MDOS documentation at this link: <https://aka.ms/mdos-user-guide>

MARXpress Prerequisites

To install, configure and deploy the MARXpress sample tool, the following must be completed:

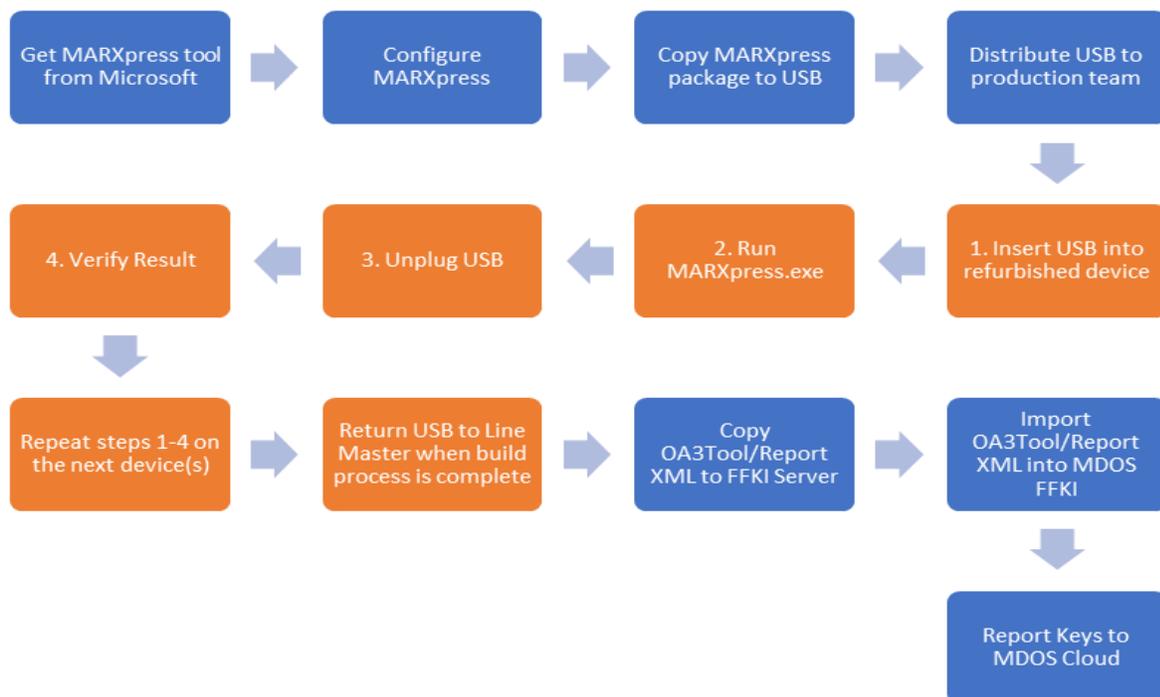
1. The MAR Partner must have a valid executed program agreement in place
2. The MAR Partner must be onboarded to MDOS (Microsoft Digital Operations Services)
3. The MAR Partner must have installed the MDOS Smart Client (MSC)
4. Have attended onboarding and training workshops for the Digital MAR process

How to get MARXpress

The tool can be provided by your Microsoft MAR onboarding team

Factory Floor General Work Flow

The following workflow describes the process for the deployment and configuration of the MARXpress sample tool onto a MAR Partners' factory floor:



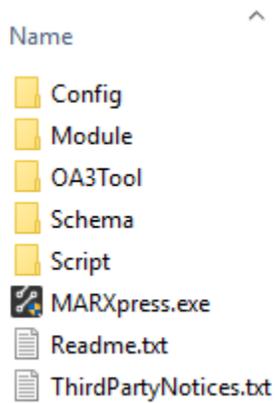
Factory Floor Process Work Flow Legend

Line Master tasks

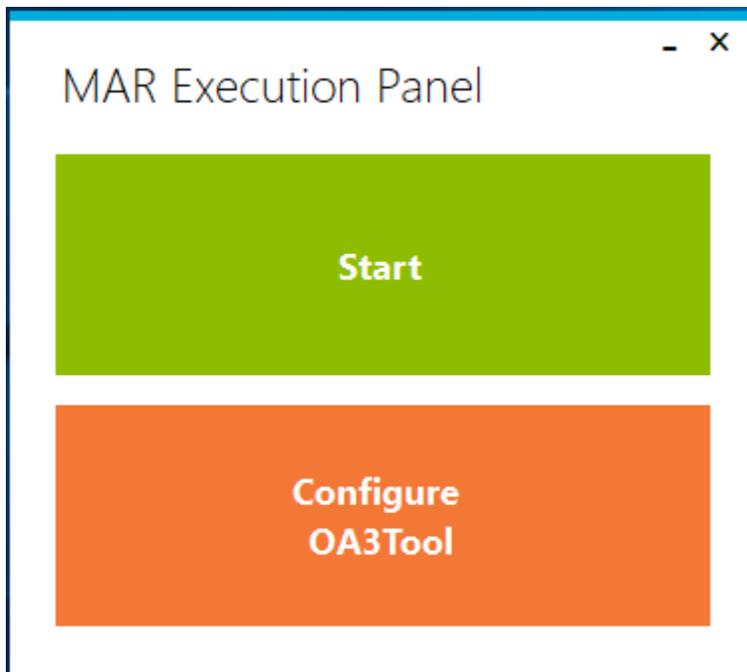
Line Worker tasks

Requirements for the Line Master/Factory Floor Lead:

1. Download the MARXpress sample tool package
2. Extract the package from the zip file
3. Click the MARXpress.exe to run:

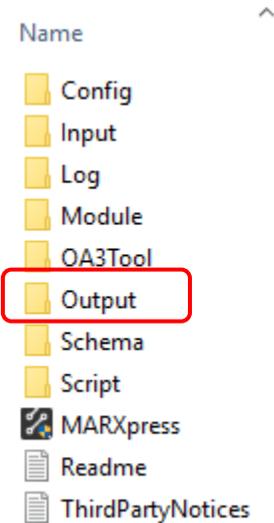


4. Configure OA3Tool by click "Configure OA3tool":



* OA3ToolConfGen is a separate, standalone tool that allows users to configure the OA3Tool. This sample MARXpress tool integrates this tool for ease of use. For more details on the steps of using OA3ToolConfGen, please see the appendix.

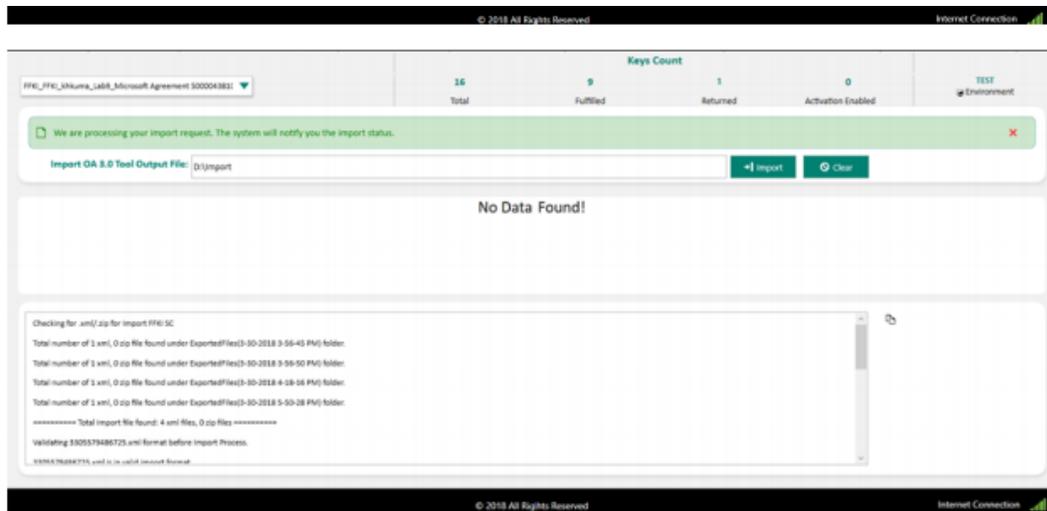
5. Copy the MARXpress tool package to a USB drive and distribute to the production line
6. When device manufacturing is completed, obtain the USB from the factory floor worker and import the XML output files from the USB into MDOS Smart Client (MSC). The XML files are in the Output folder, users can select individual files or select all files (batch import) and import them into MDOS Smart Client (MSC)



6.1 click "Import" button from MSC dashboard.



6.2 partner will need to click on the import button. All files present in the file import path location will be uploaded in the MDOS.

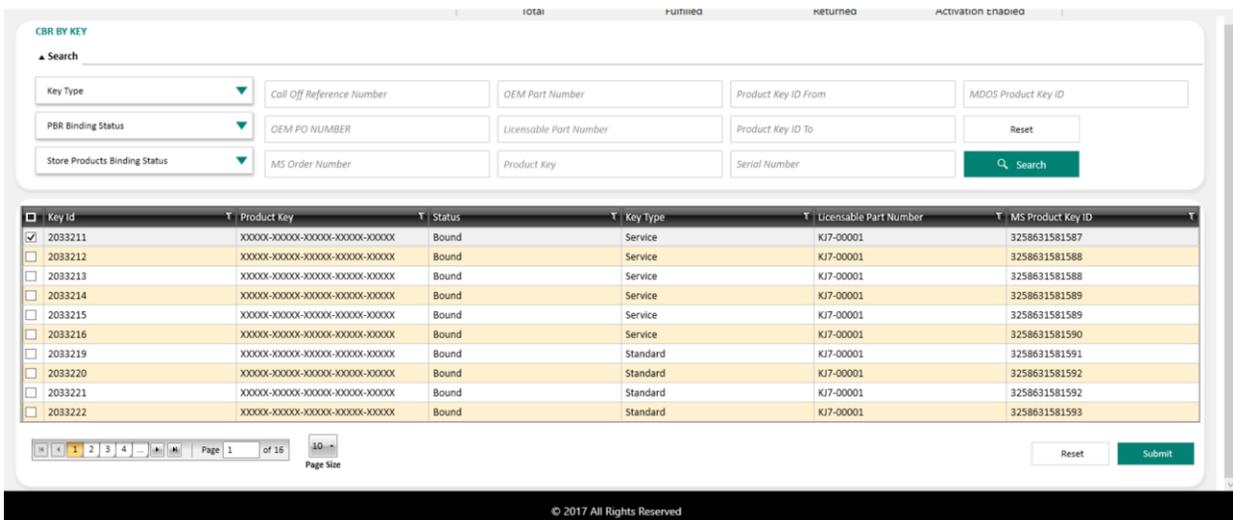


For more information on how to import keys from MSC, please refer to [MSC user manual](#), under "Import key" section.

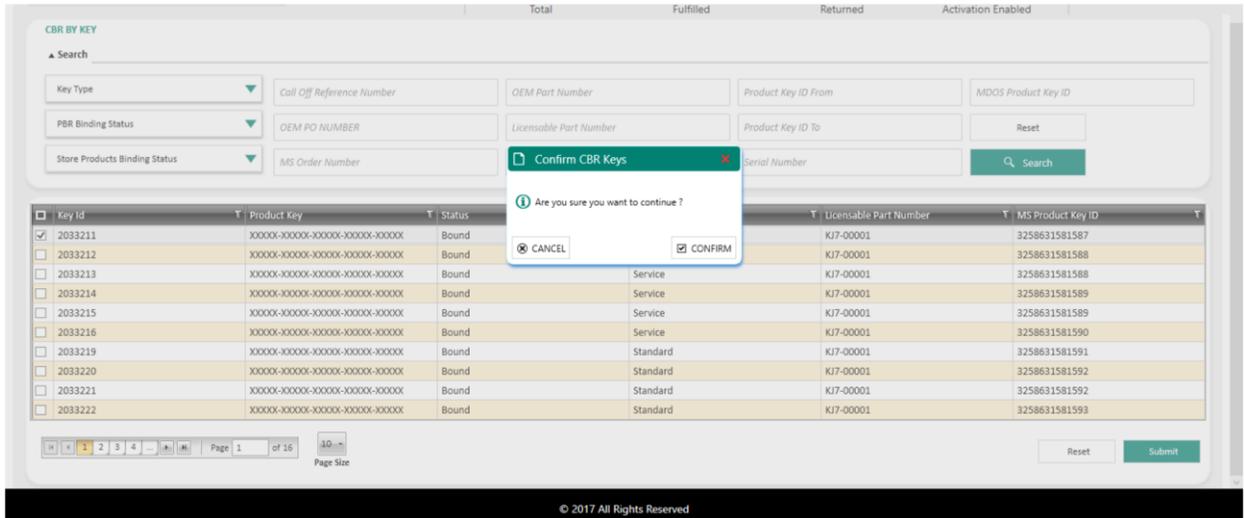
7. Report the keys to MDOS Cloud:

7.1 Click on the button CBR By Keys as shown in below screen to see the list of keys which are in "Bound" status in smart client.

7.2 Select the keys you want to submit the CBR to MS for. Click Submit to report.



7.3 Once the FFKI partner clicks on the Submit button, a confirmation window will pop up to confirm your Key Request. Click CONFIRM.

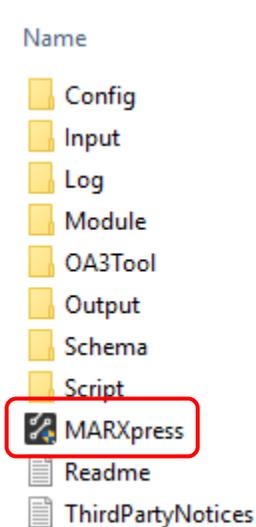


7.4 Once the CBR has been submitted, a “Key Submitted Successfully” message will briefly pop up in the green highlighted banner.

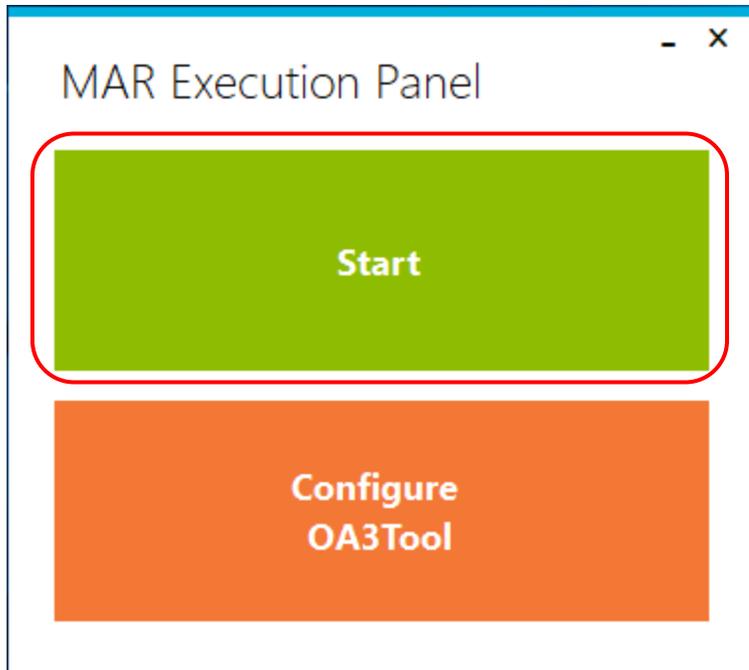
For more information on how to import key from MSC, please refer to [MSC user manual](#), under “CBR” section.

Requirements for the Line Worker/Factory Floor Worker

1. Insert the USB into each device being refurbished
2. Click the MARXpress.exe to run the tool



3. Click the Start tile

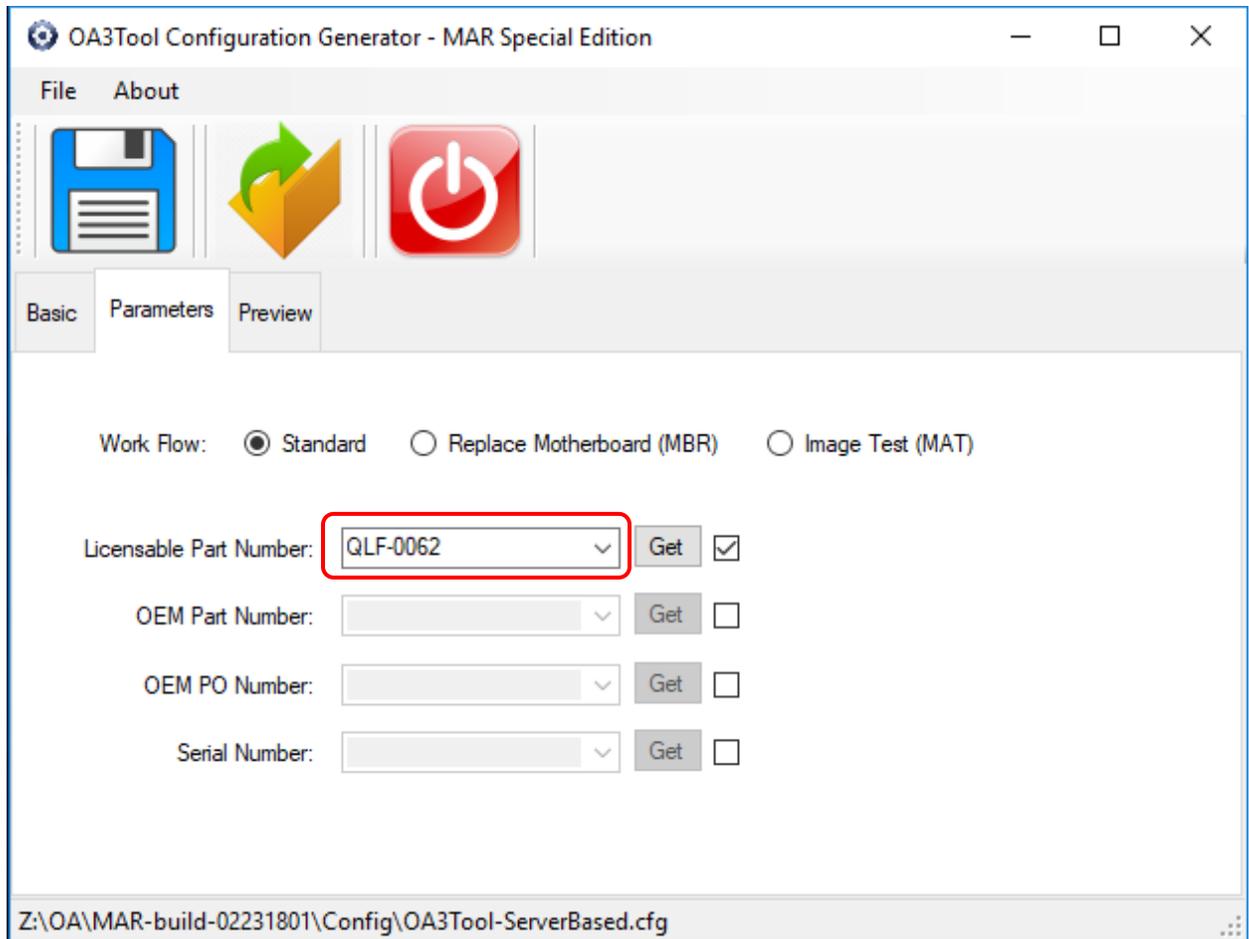


4. Repeat steps 1-3 for each device being refurbished.
5. At the end of the build process, return the USB back to your line master/factory floor lead.

MARXpress Appendix: Steps to setup and configure 'OA3ToolConfGen'

This section details how to configure the OA3ToolConfGen, incorporated into the MARXpress sample tool. This configuration process requires the MDOS MDOS Smart Client (MSC) server and associated services to be installed.

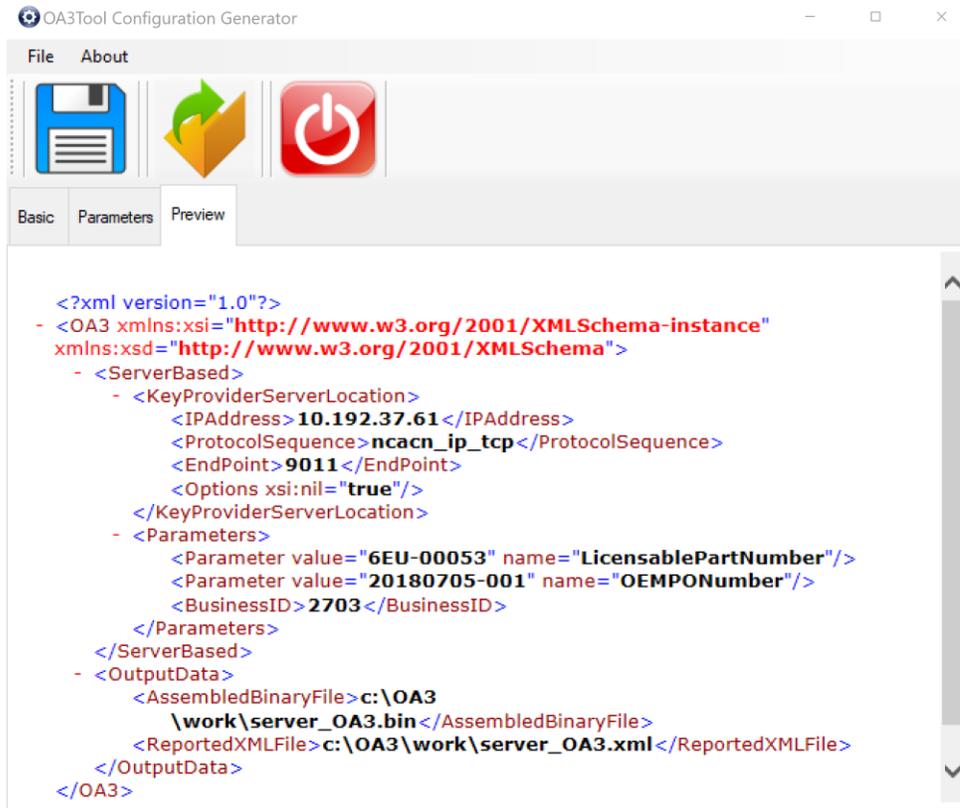
1. Specify Key Provider Service location information
2. Test Key Provider Service connection
3. Specify Parameter information for key lookup



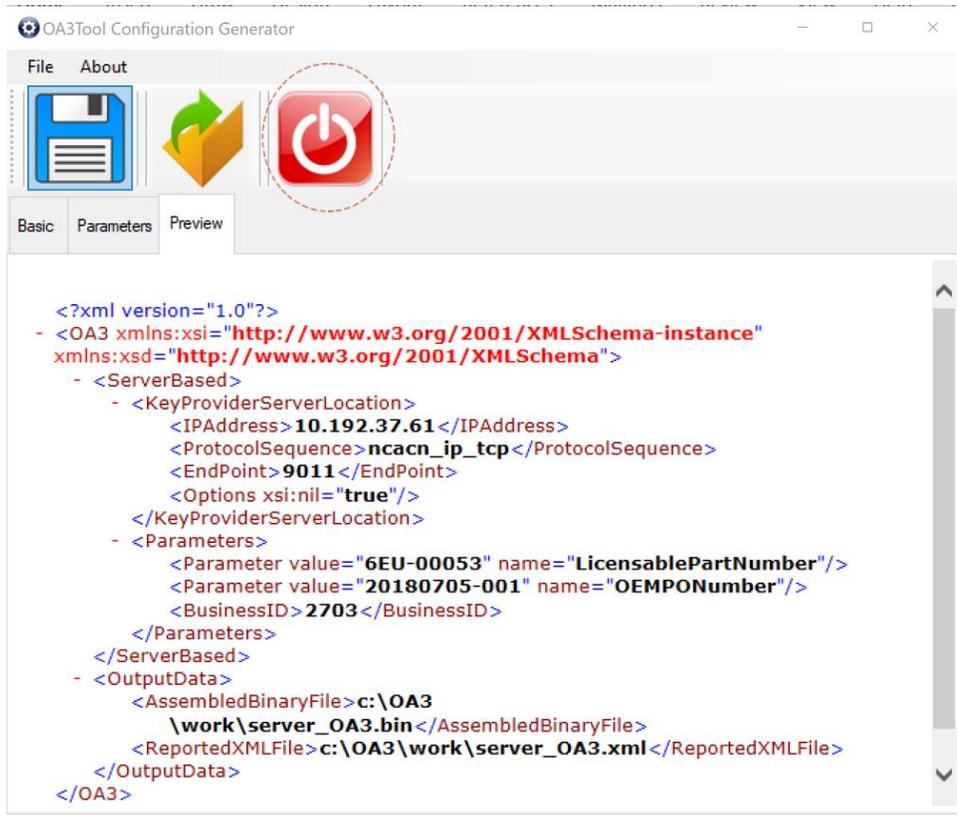
IMPORTANT: The Licensable Part Number is unique to each product edition for digital MAR products. Care must be taken to ensure that the correct licensable part number is specified to ensure that the software edition installed on the device is correct and to prevent possible activation issues.

To help prevent against errors, one option is to create separate USB devices for the different digital MAR product editions; e.g. a USB for Windows Home and a separate USB for Windows Professional.

4. Preview OA3Tool configuration file



5. Save to OA3Tool configuration file



6. Exit and Save the configuration

OA3Tool Configuration Generator - MAR Special Edition

File About



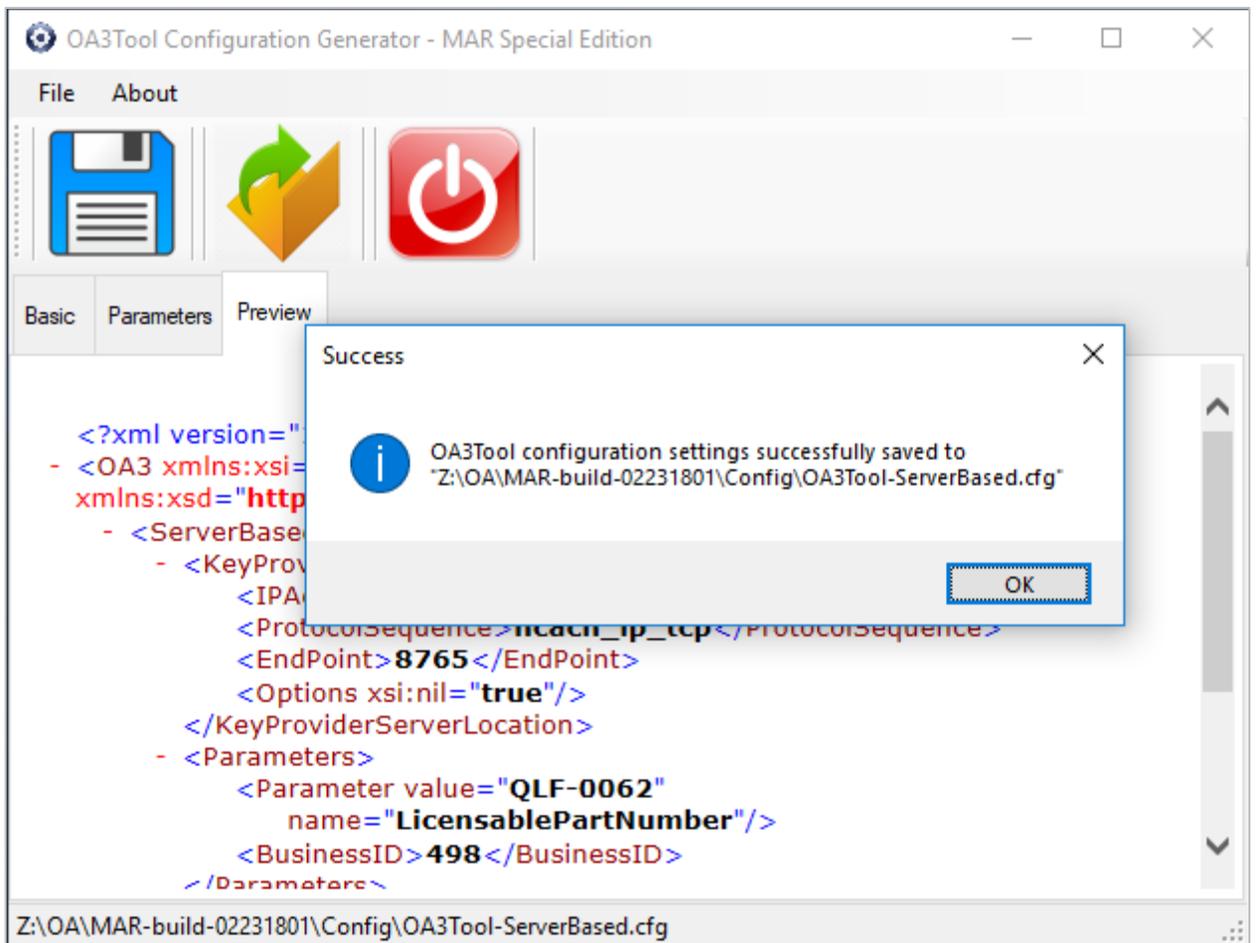
Basic Parameters Preview

Save Changes

 Save the OA3Tool configuration settings to
"Z:\OA\MAR-build-02231801\Config\OA3Tool-ServerBased.cfg"
?

```
<?xml version="1.0" encoding="utf-8" ?>
- <OA3 xmlns:xsi="http://schemas.microsoft.com/2003/11/ODD/ODD.xsd" xmlns:xsd="http://schemas.microsoft.com/2003/11/ODD/ODD.xsd">
  - <ServerBase>
    - <KeyProviderServerLocation>
      <IPAddress>192.168.1.100</IPAddress>
      <Protocol>http</Protocol>
      <EndPoint>8765</EndPoint>
      <Options xsi:nil="true"/>
    </KeyProviderServerLocation>
  - <Parameters>
    <Parameter value="QLF-0062" name="LicensablePartNumber"/>
    <BusinessID>498</BusinessID>
  </Parameters>
</OA3>
```

Z:\OA\MAR-build-02231801\Config\OA3Tool-ServerBased.cfg



Note: Product keys can be manually inserted into a Windows installation using SLMGR.vbs, however this guide focuses on automating the process using a PowerShell script and tool called MARXpress which is described in this guide. For more details about using SLMGR.vbs to manually perform product key insertion, please refer to the documentation at this link: [https://docs.microsoft.com/en-us/previous-versions/windows/it-pro/windows-server-2012-r2-and-2012/dn502540\(v=ws.11\)](https://docs.microsoft.com/en-us/previous-versions/windows/it-pro/windows-server-2012-r2-and-2012/dn502540(v=ws.11))

Manual Process

This section will describe how a DPK can be manually added into a Windows 10 installation using the Software Licensing Management Tool (SLMGR) Visual Basic script, which is in the Windows System32 folder of every Windows installation. Refurbishers can develop their own process to manage product keys and insert the keys into Windows installations, as an alternative to using the MARXpress sample tools.

Important: Refurbishers who choose to develop their own solution for inserting product keys into a Windows 10 do so at their own risk and assume all responsibilities for developing and supporting that solution.

More information on SLMGR can be found by running the command, followed by the /? option, or by reviewing this website: [https://docs.microsoft.com/en-us/previous-versions/windows/it-pro/windows-server-2012-r2-and-2012/dn502540\(v=ws.11\)](https://docs.microsoft.com/en-us/previous-versions/windows/it-pro/windows-server-2012-r2-and-2012/dn502540(v=ws.11))

Using SLMGR.vbs to insert a product key into a Windows installation

Refurbishers can use Software Licensing Management Tool (SLMGR) to insert a product key into a Windows installation by using the built-in Visual Basic Script named Software Licensing Management Tool (SLMGR.vbs). This script is available in every version of Windows and can be found in the Windows System32 folder. SLMGR can be used to insert a product key into a Windows installation by using the /IPK option and including the 29-character product key (25 alphanumeric characters separated by 4 hyphen characters).

Note: SLMGR must be run from an elevated command prompt.

SLMGR example usage to insert a product key into a Windows installation

Important: Ensure you use a product key which has not be used to activate another device.

```
C:\Windows\System32\slmgr.vbs /ipk xxxxx-xxxxx-xxxxx-xxxxx-xxxxx
```

Note: Replace the x characters in the above example with the actual product key characters. Be sure to include the four hyphen characters.

Note: You can use SLMGR either during Audit Mode or at the first screen of the Windows Out-Of-Box-Experience (OOBE). SLMGR cannot be run from WinPE.

When running SLMGR, you must supply the correct version of a product key which matches the installed Windows version, otherwise an error will be returned. For example, you must enter a Windows 10 Professional product key for a Windows 10 Professional installation. Entering a Windows 10 Home product key into a Windows 10 Professional installation will cause an error. The Operating System architecture has no impact on which product key is entered because the product key used for 32-bit is the same as the product key used for 64-bit.

Build a CBR using OA3Tool (oa3tool.exe)

Refurbishers must generate a CBR using the OA3Tool in the Windows environment (Audie Mode for example). The OA3Tool accepts some optional parameters, however the Report command is required to build the CBR. The following table shows a list of commands you can use when running the OA3Tool manually;

Command	Description	Required
oa3tool.exe	Invokes the OA3Tool	Yes
/report	Parameter to generate a CBR	Yes
/configfile	Parameter to use oa3.cfg file	Yes
/logtrace	Parameter to unpack the hardware hash to an expanded file	No
/nokeycheck	Parameter to skip checking firmware DPK	Yes, when a device does not contain a DPK in the firmware

oa3tool.exe command line options

Example usage for OA3Tool

For refurbishers who will not use MARXpress to automate the creation of inserting the product key into Windows 10 installation and creating the CBR, you must create your own custom solution. The following commands show examples of running the OA3Tool.

Example where no DPK exists in device firmware

```
oa3tool.exe /report /configfile=\tmp\oa3.cfg /logtrace=c:\tmp\example /nokeycheck
```

Example use of OA3Tool, from a temporary folder, creating CBR and logtrace file at C:\TMP

Example where a DPK exists in device firmware

```
oa3tool.exe /report /configfile=c:\tmp\oa3.cfg /logtrace=c:\tmp\example
```

Example use of OA3Tool, from a temporary folder, creating CBR at C:\TMP

Modify CBR

Before you can submit the CBR to MDOS, you will need to manually edit the CBR. You can select the OA3.FileBase.xml file and right-click to edit in Notepad.

Important: Be sure to save the file as an XML file. MDOS will not accept a CBR which is not a standard XML file.

Change the XML header as follows;

Change CBR from:

```
<Key><ProductKeyState>6</ProductKeyState><HardwareHash>
```

Change the ProductKeyState from 6 to 3 before submitting CBR to MDOS

Change CBR to:

```
<Key><ProductKeyID>InsertNewPKID</ProductKeyID><ProductKeyState>3</ProductKeyState><HardwareHash>
```

Obtain the PKID from the CBR file you created in previous step

Submit a CBR to MDOS

After you have generated and modified a CBR, the result will include a file located in the directory where the OA3Tool was executed. The OA3.FileBase.xml must be reported through the MDOS system for each device you refurbish with a digital license, even if the device contains a DPK present in the device firmware or has a physical original COA attached to the system. For detailed instructions to submit a CBR through MDOS, refer to the MDOS documentation at this link: <https://aka.ms/mdos-user-guide>

Digital Reporting

Refurbishers must submit CBRs (Computer Build Reports) into MDOS on a regular basis. For devices where you will insert product keys into the Windows installation, the CBR must be submitted no more than 24 hours after a device has been delivered to an end-user, or 4 hours before being available to an End User for activation.

The MDOS system enables Microsoft partners to upload CBR directly. Partners should follow the guidance in the MDOS User Guide for here: <https://aka.ms/MDOS-User-Guide>