TECHNICAL WHITE PAPER – **JUNE 2017**

VMWARE AIRWATCH PRODUCT PROVISIONING OF MICROSOFT OFFICE 2016 FOR macOS BEST PRACTICES

VMware AirWatch 9.1

vmware®

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Introduction

This best practices guide provides instructions for delivering Microsoft Office 2016 to managed macOS devices using the VMware AirWatch® Enterprise Mobility Management™ Product Provisioning feature. For a complex and nonstandard application such as Microsoft Office 2016, Product Provisioning serves as an alternative to the standard practice of installing the application directly on a device.

The procedures in this guide do not apply to a specific macOS-based hardware model or to a particular VMware AirWatch deployment model. The instructions provide guidance, but do not represent strict design requirements.

Purpose

This white paper provides configuration guidelines for provisioning Microsoft Office 2016 as a product to employees on managed macOS devices.

Use the procedure outlined in this paper in any of the following ways:

- Learn how to provision Microsoft Office 2016 to macOS devices.
- Customize the provided configurations to address Microsoft Office 2016 use cases not covered in this paper.
- Use the provided configurations as a framework for identifying and provisioning other complex applications.

What Is VMware AirWatch Enterprise Mobility Management?

VMware AirWatch Enterprise Mobility Management enables and secures the workspace for today's mobile operating systems. The AirWatch Console aggregates mobile endpoints of every platform, operating system, and type into a single management space.

Unified endpoint management with VMware AirWatch provides standard enterprise mobility management functionality, such as device restrictions, platform-specific features, and application security. VMware AirWatch also offers additional security options, including device encryption, access control for corporate resources, and data loss prevention.

AirWatch Enterprise Mobility Management

- Streamlines deployment options
- Simplifies over-the-air configurations
- Enables an interoperable framework for enterprise security with VMware NSX® integration, customer-accessible APIs, and a broad ecosystem of partner integrations via the Mobile Security Alliance
- Provides an enterprise app storefront for Android, iOS, macOS, Windows 7 through 10, and rugged and Internet of Things (IoT) devices

What Is AirWatch Product Provisioning?

Product Provisioning is a feature of VMware AirWatch Enterprise Mobility Management that delivers custom or complex files to managed devices. In cases when you cannot directly install a file or set of files, package the files in the AirWatch Console, creating a *product*. Then, provision that product to managed devices, and monitor provisioning status from the AirWatch Console.

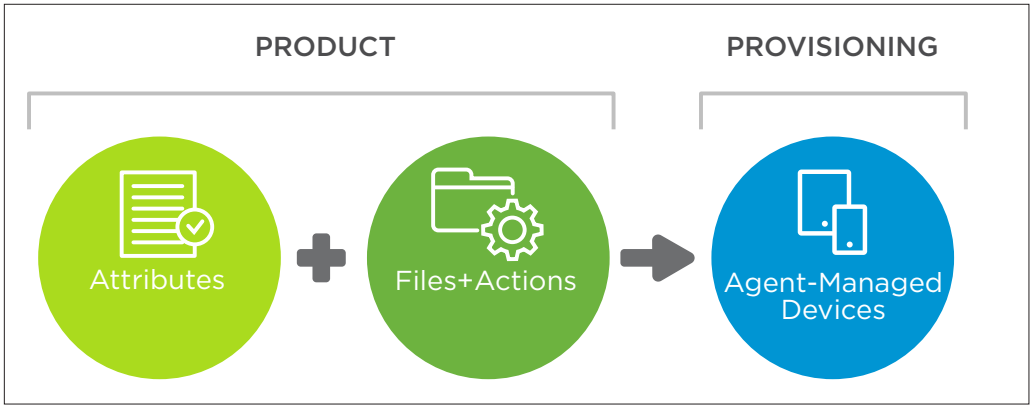


Figure 1: Overview of VMware AirWatch Product Provisioning

This guide shows how to configure:

- A custom XML profile to preset default values for the installed applications
- A Custom Attribute payload to detect pre-installed software, which avoids running the installer on pre-installed devices
- Microsoft Office 2016 for Mac by adding files and actions

Intended Audience

This guide assumes a basic knowledge and understanding of VMware AirWatch and Microsoft Office 2016. It does not cover VMware AirWatch product deployment or managing macOS devices.

VMware AirWatch system administrators of macOS devices can use this document to deliver Microsoft Office 2016 to managed devices using Product Provisioning.

Apple macOS system administrators can use this document to learn more about deploying complex applications, such as Microsoft Office 2016, with Product Provisioning.

Apple macOS system engineers and administrators can learn about VMware AirWatch technical capabilities that augment deploying software not available in the App Store.

Microsoft Office 2016 Use Case for Product Provisioning

Figure 2 summarizes the use case covered in this guide and demonstrates the nested structure of a provisioned product. Multiple application installers for Microsoft Office 2016 are bundled into a single product for provisioning to managed macOS devices.

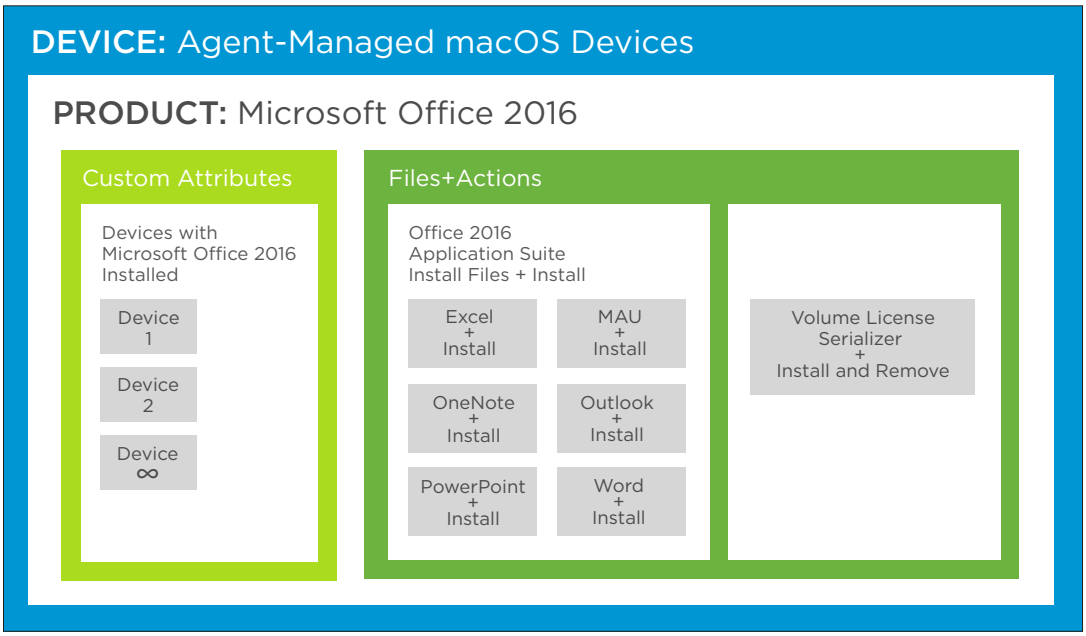


Figure 2: Managed macOS Devices Provisioned with the Microsoft Office 2016 Product

Provision Office 2016 for macOS

The following sections provide step-by-step instructions to deploy Microsoft Office 2016 for macOS using VMware AirWatch. The sections are in the recommended order of completion.

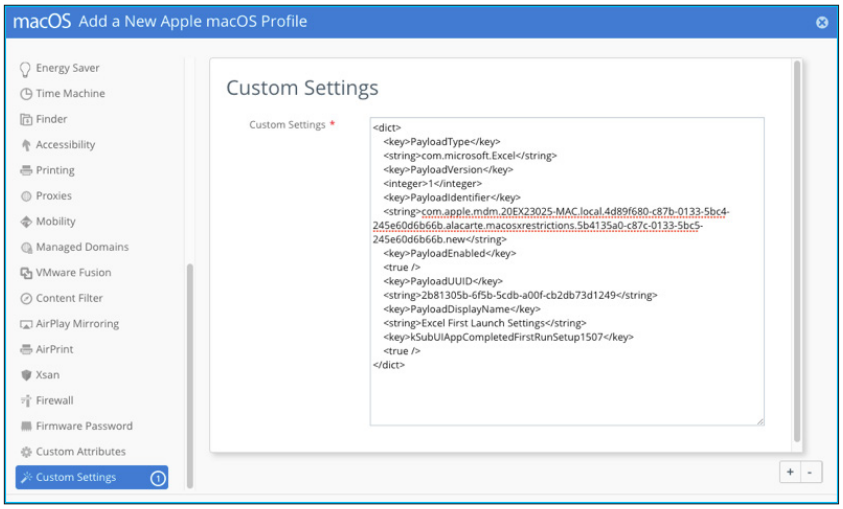
1. Skip Splash Screens – This optional section demonstrates how to use custom XML to modify configurable parameters supported by Office 2016.
2. Report Devices Running Microsoft Office 2016 – This optional section demonstrates how to create and use custom attributes to report information to the AirWatch Console that is not collected by default. As demonstrated in following sections, you can leverage these attributes to further constrain device and user scoping for a product.
3. Separate the Product Application Suite Install Scripts – This required section illustrates how a script leverages the Microsoft Content Delivery Network to host the Office 2016 application installers and instructs how to create individual application installation scripts.
4. Configure Files and Actions for the Product Application Suite – This required section describes how to build each component of the Office 2016 product.
5. Create the Microsoft Office 2016 for Mac Product – This required section describes how to aggregate all the files and actions components into a product that is deployed to managed devices and installs Microsoft Office 2016.

Skip Splash Screens

Microsoft Office 2016 for Mac supports modifying `plist` file snippets to remove the splash screens that appear when Office 2016 applications launch. This optional exercise creates a custom XML profile that modifies the `plist` file for each application. You can complete the rest of the exercises if you choose to skip this exercise.

1. Go to the Custom XML payloads for Microsoft Office 2016 for Mac page in the VMware Developer Center.
2. Download the SetupMSOFirstRun.xml file, which contains the `plist` snippets used to skip the splash screens.
3. In the AirWatch Console, navigate to **Add** > **Profile** > **macOS** > **Device Profile**.
4. On the General tab, provide basic information for the profile:
   - **Name** – Enter `macOS-CustomXML-Microsoft Office 2016` to indicate the profile's purpose and application.
   - **Assignment Group(s)** – Select an assignment group that contains the macOS devices or users licensed to use Microsoft Office.

5. In the menu on the left, click **Custom Settings**.
   a. Click **Configure**.
   b. From the XML file, copy the dictionary snippet (`<dict> … </dict>`) for one of the Microsoft Office applications into the **Custom Settings** text box.



   c. To open another text box, click the + icon in the bottom right corner.
   d. Add the dictionary snippet for another Office application, and continue this process until each application is configured.
   e. After all the snippets are added, click **Save**.
6. Click **Publish**, then click **Publish** again to deliver the profile to the assigned devices.

Report Devices Running Microsoft Office 2016

The following procedure creates a Custom Attribute profile payload, which reports requested device information to the AirWatch Console. In this use case, the payload reports devices with the 2016 version of Microsoft Office currently installed.

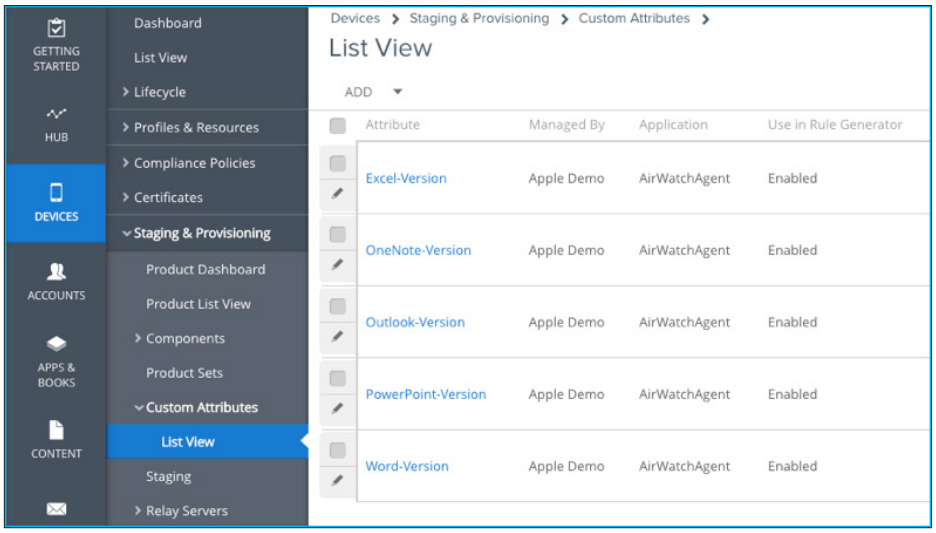
The report serves its primary purpose in another configuration—the creation of the Microsoft Office 2016 product. When you create that product, use the reported attributes to determine exclusions for product assignment. This use of exclusions prevents Microsoft Office 2016 from provisioning to devices that already have the applications installed.

1. In the AirWatch Console, make sure that you are in a customer-level Organization Group.
2. Navigate to **Add** > **Profile** > **macOS** > **Device Profile**.
3. Configure the General tab.
   - **Name** – Enter `macOS-Attributes-Microsoft Office 2016 Versions` to indicate the profile's purpose and application.
   - **Assignment Group** – Select an assignment group that contains the macOS devices or users licensed to use Microsoft Office.
4. Navigate to **Custom Attributes** > **Configure**.
5. Configure a Custom Attribute payload that reports values for each application in the Microsoft Office 2016 suite.
   a. Enter one of the following attribute names, and paste the corresponding script into the text box.

ATTRIBUTE NAME	SCRIPT/COMMAND
Word-Version	`if [ -x "/Applications/Microsoft Word.app" ]; then /usr/bin/defaults read /Applications/Microsoft\ Word.app/Contents/Info.plist CFBundleShortVersionString ; else echo "0.0"; fi`
Excel-Version	`if [ -x "/Applications/Microsoft Excel.app" ]; then /usr/bin/defaults read /Applications/Microsoft\ Excel.app/Contents/Info.plist CFBundleShortVersionString ; else echo "0.0"; fi`
OneNote-Version	`if [ -x "/Applications/Microsoft OneNote.app" ]; then /usr/bin/defaults read /Applications/Microsoft\ OneNote.app/Contents/Info.plist CFBundleShortVersionString ; else echo "0.0"; fi`
PowerPoint-Version	`if [ -x "/Applications/Microsoft Powerpoint.app" ]; then /usr/bin/defaults read /Applications/Microsoft\ Powerpoint.app/Contents/Info.plist CFBundleShortVersionString ; else echo "0.0"; fi`
Outlook-Version	`if [ -x "/Applications/Microsoft Outlook.app" ]; then /usr/bin/defaults read /Applications/Microsoft\ Outlook.app/Contents/Info.plist CFBundleShortVersionString ; else echo "0.0"; fi`

   b. Set the **Execution Interval** to **Schedule** to execute the script in hourly intervals.
   c. From the **Report Every** drop-down menu, select a time frame of **4 hours** to periodically refresh the custom attribute's value on the device.
   d. To add the next attribute name, click **+** in the bottom right corner.
   e. Repeat these steps to add the custom attribute for each application.

6. To push the fully configured profile to devices, click **Save & Publish**.
   Allow time for the profile to deliver to devices and return the results of the custom attribute scripts.
7. Navigate to **Devices** > **Staging & Provisioning** > **Custom Attributes** > **List View** to verify that the configured Attribute names appear in the list view.



This report's values get applied when configuring the product's assignment rules to avoid unnecessary provisioning to devices that already have the applications installed.

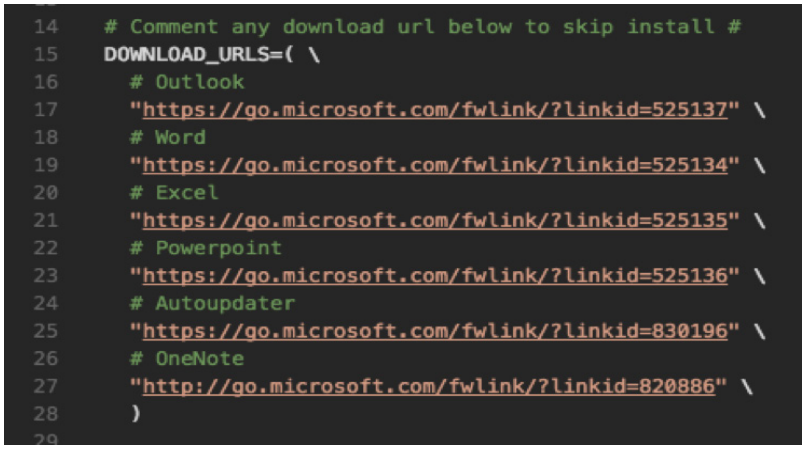
Separate the Product Application Suite Install Scripts

The following procedure demonstrates how to use a software vendor's content delivery network (CDN) as a source for applications installers.

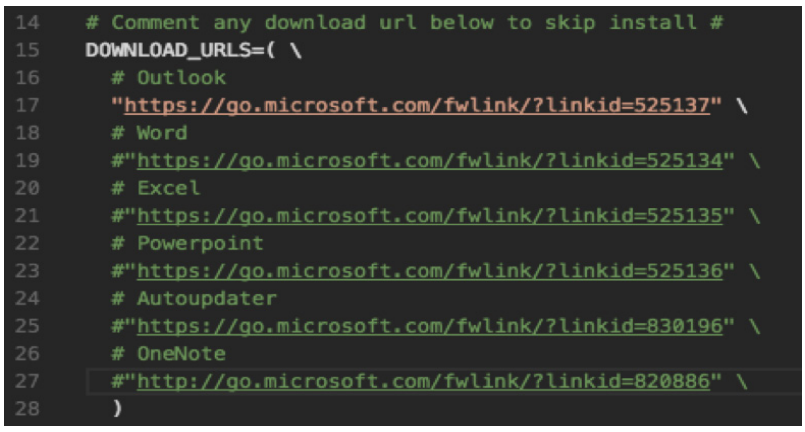
Create a separate install script for each Microsoft Office application to generate a log for each component that you are installing.

1. Go to Shell Script to Install Microsoft Office 2016 for Mac in the VMware Developer Center.
2. Download the `InstallMSO2016.sh script`, and open it in a text editor.

3. Locate the `DOWNLOAD_URLS` code block, as in line 15 in the screenshot.
   Each line represents an Office application.



4. Use a **#** to comment out all the URL lines in the code block, except for the one for which you are creating an install file, and save the file as `InstallMSO2016-<App Name>.sh`.
   For example, to create an install file for Outlook, comment out every URL line, except the Outlook URL on line 17. Then, save a local copy of the file. Name the file `InstallMSO2016-Outlook.sh`.



5. Repeat the process for each application by reopening the `InstallMSO2016.sh file`, commenting out the URL lines, and saving them as `InstallMSO2016-<App Name>.sh`.

6. Open the local storage location for the application install files. Verify that a file was created for each application.

APP NAME	FILE
Excel	`InstallMSO2016-Excel.sh`
MAU	`InstallMSO2016-MAU.sh`
OneNote	`InstallMSO2016-OneNote.sh`
Outlook	`InstallMSO2016-Outlook.sh`
PowerPoint	`InstallMSO2016-PowerPoint.sh`
Word	`InstallMSO2016-Word.sh`

Configure Files and Actions for the Product Application Suite

To provision Microsoft Office 2016 to macOS devices, it must become a product. Files and actions serve as the product's building blocks. For Product Provisioning, *files* refer to a literal file, and *actions* refer to a behavior associated with a specific file.

For this use case, the Office files consist of each application in the Microsoft Office suite's individual install scripts, and the associated action is "Install."

1. In the AirWatch Console, navigate to **Devices** > **Staging & Provisioning** > **Components** > **Files/Actions** > **Add Files/Actions** > **Apple macOS** to configure files and actions for each Office application.
2. On the General tab, enter a Files/Actions Name for each application using the format `MSO2016 <App Name>`.

   Note: Because Volume Licensing has an extra configuration step, configure it last to streamline configuration in alignment with the instructions in this white paper.

APP NAME	FILES/ACTIONS NAME
Excel	MSO2016 Excel
MAU	MSO2016 MAU
OneNote	MSO2016 OneNote
Outlook	MSO2016 Outlook
PowerPoint	MSO2016 PowerPoint
Word	MSO2016 Word
Volume Licensing	MSO2016 VL Serializer

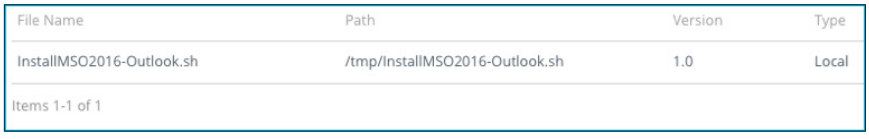
3. On the **Files** tab, upload one of the application install files created in the Separate the Product Application Suite Install Scripts procedure.
   a. Select **Add Files** > **Choose Files** and browse for the install script file to upload.

APP NAME	FILES
Excel	InstallMSO2016-Excel.sh
MAU	InstallMSO2016-MAU.sh
OneNote	InstallMSO2016-OneNote.sh
Outlook	InstallMSO2016-Outlook.sh
PowerPoint	InstallMSO2016-PowerPoint.sh
Word	InstallMSO2016-Word.sh
Volume Licensing	Microsoft_Office_2016_VL_Serializer_2.0.pkg

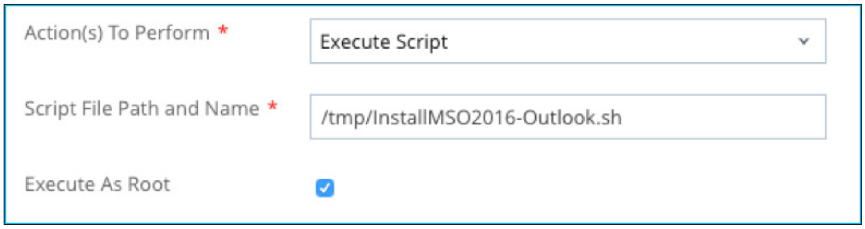
   b. Click **Save** to open the Add File window.
   c. In the text box, enter the download path.

APP NAME	DOWNLOAD PATH
Excel	/tmp/InstallMSO2016-Excel.sh
MAU	/tmp/InstallMSO2016-MAU.sh
OneNote	/tmp/InstallMSO2016-OneNote.sh
Outlook	/tmp/InstallMSO2016-Outlook.sh
PowerPoint	/tmp/InstallMSO2016-PowerPoint.sh
Word	/tmp/InstallMSO2016-Word.sh
Volume Licensing	/tmp/Microsoft_Office_2016_VL_Serializer_2.0.pkg

   d. Click **Save** and review the file name and download path.

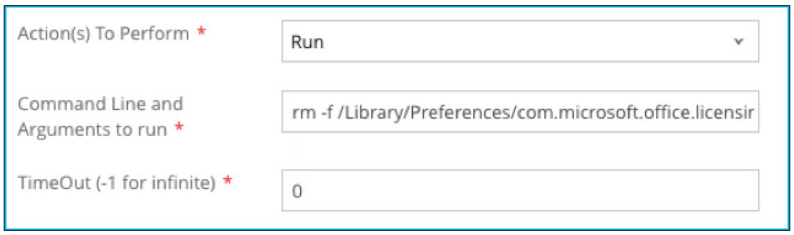


4. On the Manifest tab, configure the options in the Install Manifest section.
   a. Click **Add Action**.
   b. From the **Action(s) to Perform** drop-down menu, select **Execute Script**.
   c. Enter the appropriate script file path and name.
   d. Select **Execute As Root**.



   e. In the Add Manifest window, click **Save**.
   f. To upload the application's files and actions to VMware AirWatch, in the Add Files/Actions window, click **Save**.
5. To configure another Office 2016 application, repeat steps 1–4.

   Important: Configure the *volume license serializer* last. First, repeat steps 1-4. Then, follow these steps.
   a. In the Add Files/Actions window, scroll down to the Uninstall Manifest section, and click **Add Action**.
      - **Action(s) To Perform** – Select **Run** from the drop-down menu.
      - **Command Line and Arguments to run** – Enter `rm -f /Library/Preferences/com.microsoft.office.licensingV2.plist`.
      - **TimeOut** – Enter `0`.



   b. In the Add Manifest window, click **Save**.
   c. To upload the files and actions for the volume license serializer to VMware AirWatch, in the Add Files/Actions window, click **Save**.

Create the Microsoft Office 2016 for Mac Product

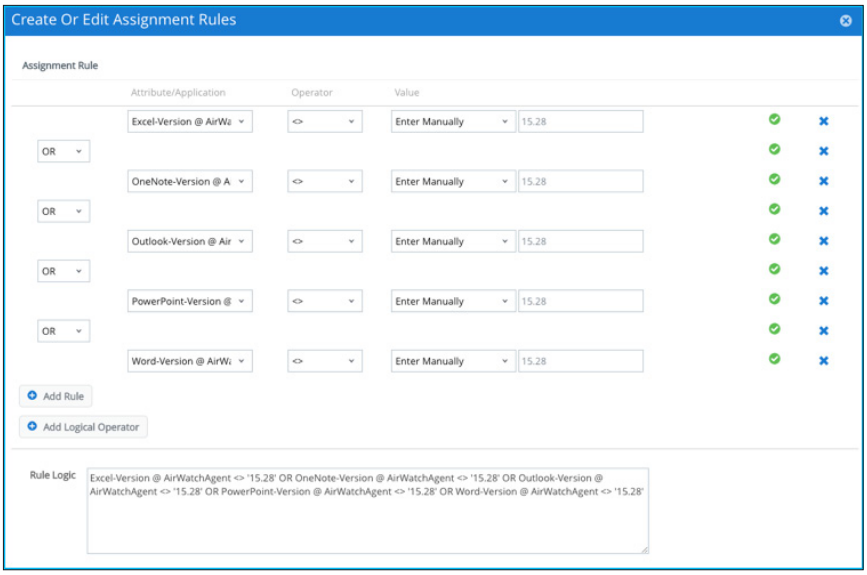
The product contains all the individual application installers.

1. In the AirWatch Console, navigate to **Devices** > **Staging & Provisioning** > **Product List View** > **Add Product** > **Apple macOS**.
2. On the General tab, complete the fields to provide basic product information.
   - **Name** – Enter the name `Microsoft Office 2016 for Mac`.
   - **Assignment Group(s)** – Select an assignment group that contains macOS devices or users licensed to use Microsoft Office.
   - **Assignment Rules** – Click to configure a rule for each custom attribute associated with Microsoft Office 2016, and add a logical operator between each rule to define how the rules interact.
     a. In the Add Product window, click **Add Rules**.
     b. In the Create or Edit Assignment Rules window, click **Add Rule** and choose values from the drop-down menus to configure assignment for the attributes.

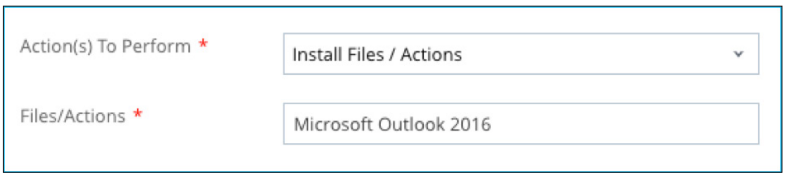
MENU	VALUE
Attribute/ Application	Select a custom attribute value for a single application from the Microsoft Office 2016 suite. This ensures that the product does not install on devices with Microsoft Office 2016 already installed. • Excel-Version • OneNote-Version • Outlook-Version • PowerPoint-Version • Word-Version
Operator	From the drop-down menu, select **<>** (not equals).
Value	From the drop-down menu, select **Enter Manually**, and enter the version number of the install file used. **Note:** At the time of publication of this document, the version number of the available file was `15.28`. Check Microsoft Office 2016 for Mac Downloads for the current version number.

     c. If configuring another Attribute and Value, select **Add Logical Operator** and select **OR** from the drop-down menu.

d. Review the configured rules and click **Save**.



3. On the Manifest tab, click **Add**, and configure the fields to create the Microsoft Office 2016 product.
   a. **Action(s) To Perform** – Select **Install Files / Actions**.
   b. **Files/Actions** – Enter the name of one of the files and actions that you created.



   c. Click **Save**.
4. Repeat Step 4 for each file created in the section Configure Files and Actions for the Product Application Suite.
5. Review the manifest and ensure that all the applications are included.

Up	Down	Step Number	Action Type	Persistent	Description
▲	▼	1	Install Files / Actions	No	Files/Actions = Microsoft Outlook 2016
▲	▼	2	Install Files / Actions	No	Files/Actions = Microsoft Word 2016
▲	▼	3	Install Files / Actions	No	Files/Actions = Microsoft Excel 2016
▲	▼	4	Install Files / Actions	No	Files/Actions = Microsoft Powerpoint 2016
▲	▼	5	Install Files / Actions	No	Files/Actions = Microsoft OneNote 2016
▲	▼	6	Install Files / Actions	No	Files/Actions = Microsoft AutoUpdater
▲	▼	7	Install Files / Actions	No	Files/Actions = Microsoft Volume Licensing Seriali...

Items 1-7 of 7

6. On the **Deployment** tab, set the product type to **Required**, and click **Activate** for the Microsoft Office 2016 product.
7. Review the list of target devices, and click **Activate**.
8. Navigate to **Devices** > **Staging & Provisioning** > **Product Dashboard** and review the status of the product deployment. Available statuses include:
   - In progress
   - Successful
   - Failed

Summary

Product Provisioning, a VMware AirWatch Enterprise Mobility Management feature, provides a customizable method for delivering applications to managed devices. You can use Product Provisioning as an alternative to standard delivery methods for non-store applications like Microsoft Office 2016.

This document provided instructions for provisioning Microsoft Office 2016 as a product to managed macOS devices. It described:

1. How to use custom XML to modify configurable parameters supported by the third-party software title.
2. How to create and use custom attributes to report information to the VMware AirWatch Console that is not collected by default.
3. How to leverage a software vendor's CDN as a source for application installers.
4. How to configure assignment rules to leverage custom attributes to further constrain device and user scoping for a product.
5. How to turn all the files and actions required to install non-app-store software components into a product that can be deployed to managed devices.

Additional Resources

Microsoft Office for Mac Resources

- Microsoft Office Software Repository
- #Microsoft-Office Channel on MacAdmins Slack

AirWatch Product Provisioning Documentation

- FAQ: Product Provisioning for macOS (AirWatch knowledge base article)
- Software deployment guidance and common product recipes for macOS (AirWatch knowledge base article)

Product Documentation for AirWatch 9.1

To learn more, search for keywords in the AirWatch Online Help system.

Product Provisioning keywords and phrases:

- Product Provisioning & Staging
- Product Provisioning Feature Matrix
- Assign Organization Groups Using Custom Attributes
- Product Provisioning Overview
- macOS Custom Attributes
- Files/Actions for Products
- Create a Product

Mobile Device Management for macOS keywords and phrases:

- Architecture
- Directory Services Integration
- Certificate Management
- Apple Device Enrollment Program
- Apple Configurator
- Accounts
- macOS Enrollment Overview
- Managing Devices Overview
- macOS Device Profiles Overview
- Compliance Policies Overview
- Mobile Application Management
- Mobile Content Management

Finding PDF Guides for AirWatch 9.1

If you prefer to read a physical document, reference the Product Documentation for AirWatch v9.1 list, available within the AirWatch Online Help system. Then, complete the following steps:

1. Search the list for the appropriate document. In this instance, the following choices are appropriate:
   - AirWatch Assignment Groups – *Chapter 6 (Groups)* in the VMware AirWatch Mobile Device Management Guide
   - Product Provisioning – VMware AirWatch Product Provisioning for macOS Guide
2. Copy the address of the link beside the document title. Then, click the link.
3. Enter credentials on the myAirWatch authentication screen.
4. Paste the link address into the navigation bar.

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