

# VMware AirWatch Product Provisioning and Staging for Android Guide

Using Product Provisioning for managing Android devices.

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# Chapter 1:

## Introduction to Product Provisioning for Android Rugged

Product provisioning enables you to create, through Workspace ONE™ UEM, products containing profiles, applications, files/actions, and event actions (depending on the platform you use). These products follow a set of rules, schedules, and dependencies as guidelines for ensuring your devices remain up-to-date with the content they need.

Product provisioning also encompasses the use of relay servers. These servers are FTP(S) servers designed to work as a go-between for devices and the UEM console. Create these servers for each store or warehouse to store product content for distribution to your devices.

Another product provisioning feature is the staging methods of enrollment. Depending on the device type, you can perform device staging that quickly enrolls a device and downloads the AirWatch Agent, Wi-Fi profile, and any other important content. The methods of staging a device vary by platform.

As this guide focuses on the functionality provided by product provisioning, it does not contain all the features and functionality that Workspace ONE™ UEM offers for managing Android devices. For more information on general MDM functionality for Android devices, see the **Android Platform Guide** available on [docs.vmware.com](https://docs.vmware.com).

### Supported Devices, OS, and Agents

The product provisioning functionality supports different devices and operating systems. The functionality available changes based on the supported rugged device.

Workspace ONE™ UEM supports product provisioning for devices with the following operating systems.

- Android devices v4.1 (Jelly Bean) and later with AirWatch Agent.

# Chapter 2:

## Relay Servers

Relay servers act as a content distribution node that provides help in bandwidth and data use control. Relay servers act as a proxy between the Workspace ONE™ UEM server and the rugged device for product provisioning.

### Relay Server Basics

The relay server acts as an FTP/Explicit FTPS/SFTP server that distributes products to the device for download and installation. You can distribute to all devices without consuming all the bandwidth to the main/central MDM server.

**Push Relay Servers** – This method is typically used in on-premises deployments. The UEM console pushes content and applications contained in the product or staging to the relay server.

**Pull Relay Servers** – This method is typically used in SaaS deployments. A web-based application stored in the relay server pulls content and applications contained in the product or staging from the UEM console through an outbound connection.

Relay servers are required for Motorola Rapid Deployment Barcode Enrollment. Otherwise, Relay servers are optional, but recommended, for pushing products to downloaded apps and content – as opposed to downloading directly from the server that hosts the Workspace ONE UEM console.

Relay servers also add redundancy through the fallback feature. If a device's relay server is down, the device falls back to the next relay server in the hierarchy system until it finds a working server or connects to the Workspace ONE UEM console server.

If you are not using a relay server, the device downloads apps and content directly from the UEM console server.

### Source Server Versus Relay Server

A source server is the original location of the data, usually a database, or content repository. After the data is downloaded from the source server to the UEM console, it is then transferred to the relay server. The data is then downloaded from the relay server to devices.

### Configure a Relay Server

Configure an FTP, Explicit FTPS, Implicit FTPS (Pull Only), or SFTP file server to integrate with Workspace ONE UEM as a relay server. For more information, see [Configure a Relay Server on page 7](#).

## Pull Relay Server Configuration

Relay servers either push or pull content based on the configuration. A pull relay server pulls content from Workspace ONE UEM based on certain variables established in the server configuration. A push server pushes content from Workspace ONE UEM to devices whenever it is published. For more information on installing a pull server, see [Pull Service Based Relay Server Configuration on page 10](#).

## Bulk Importing

The Relay Server Import feature loads relay servers into the system in bulk. This feature simplifies the configuration of multiple relay servers. For more information, see [Batch Import Relay Servers on page 13](#).

## Remote Viewing of Files on a Relay Server

After configuring a relay server and assigning products to use the relay server, you can view the files hosted on the server. For more information, see [Remote Viewing Files on Relay Server on page 14](#).

## Relay Server Management

Maintaining Relay Servers keeps your products running smoothly so your devices remain up-to-date. Workspace ONE UEM offers several tools to ensure that your relay servers work as intended. For more information, see [Relay Server Management on page 15](#).

## Configure a Relay Server

Configure a relay server by configuring an FTP, Explicit FTPS, Implicit FTPS (Pull only), or SFTP file server and integrating it with Workspace ONE UEM. Workspace ONE UEM console is not compatible with Implicit FTPS Push Relay Servers.

**Important:** If you use the pull service to create a pull-based relay server, you must give SYSTEM full access to the home directory. This configuration means the pull service stores and removes files from the directory.

## Pull Relay Server Security

Client-server applications such as Workspace ONE UEM use the transport layer security (TLS) cryptographic protocol to communicate across a network. TLS is supported by the file transfer protocol (FTP), file transfer protocol over SSL (FTPS), and SSH file transfer protocol (SFTP).

These file transfer protocols only secure those parts of the process where data is in transit between the client and the server. Because of this limitation, VMware recommends the use of OS-level disk encryption. There are several operating system-specific tools available (for example BitLocker for Windows, GnuPG for Linux).

## Requirements

- An FTP, Explicit FTPS, Implicit FTPS (Pull only), or SFTP server.
  - Pull service bandwidth needs and minimum hardware requirements are negligible when compared to pushing products to devices. Such needs are entirely dependent upon 1) the number of products you are pushing, 2) how often they are pushed, and 3) the size of the products in MBs.
  - When assessing hardware and bandwidth needs for FTP servers, consider following general guidelines and adjust their specifications as your needs change.
  - General FTP Server Guidelines: 2 GHz x86 or x64 processor and 4 GB RAM.
- You must create an FTP user with a home directory. This user must have read/write/delete permissions for both the directory and the files used in the relay server. This FTP user must have a user name and password for authentication.
- Workspace ONE UEM supports SFTP servers, however, the supported staging clients, Stage Now (Android), and Rapid Deployment, do not support SFTP servers for use with barcode staging.

## Procedure

1. Navigate to **Devices > Staging & Provisioning > Relay Servers > List View** and select **Add**, followed by **Add Relay Server**.
2. Complete all applicable settings in the tabs that are displayed.

Setting	Description
General	
<b>Name</b>	Enter a name for the relay server.
<b>Description</b>	Enter a description for the relay server.
<b>Relay Server Type</b>	<p>Select either Push or Pull as the relay server method.</p> <p><b>Push</b> – This method is typically used in on-premises deployments. The UEM console pushes content and applications contained in the product or staging to the relay server.</p> <p><b>Pull</b> – This method is typically used in SaaS deployments. A web-based application stored in the relay server pulls content and applications contained in the product or staging from the UEM console through an outbound connection.</p> <p>For more information on installing a pull server, see <a href="#">Pull Service Based Relay Server Configuration on page 10</a>.</p>



Setting	Description
<b>Restrict Content Delivery Window</b>	<p>Enable to limit content delivery to a specific time window. Provide a <b>Start Time</b> and <b>End Time</b> to restrict the delivery of content.</p> <p>The start time and end time of the restriction window is based on Coordinated Universal Time (UTC), which the system obtains by converting the console server time into Greenwich Mean Time (GMT).</p> <p>Please set the system time on the console server accurately to ensure your content is delivered on time.</p>
<b>Assignment</b>	
<b>Managed By</b>	<p>Select the organization group that manages the relay server.</p> <p>If you want to use the FTPS server for Barcode Enrollment only and not for Product Provisioning, remove all assigned organization groups under the Production Server section.</p>
<b>Staging Server</b>	<p>Assign the organization groups that use the relay server as a staging server.</p> <p>A staging server only works for the staging process involving the supported staging clients, Stage Now (Android) and Rapid Deployment.</p>
<b>Production Server</b>	<p>Assign the organization groups that use the relay server as a production server.</p> <p>A production server works with any device with the proper agent installed on it.</p>
<b>Device Connection</b>	
<b>Protocol</b>	<p>This is the information the device uses to authenticate with the FTP(s) server when downloading apps and content.</p> <p><b>FTP, Explicit FTPS, Implicit FTPS (pull only), or SFTP</b> as the Protocol for the relay server.</p> <p>If using Explicit FTPS, your Explicit FTPS server must have a valid SSL certificate. Configure the SSL certificate on the Explicit FTPS server.</p>
<b>Hostname</b>	Enter the name of the server that hosts the device connection.
<b>Port</b>	<p>Select the port established for your server.</p> <div> <p><b>Important:</b> The ports you configure when you create your FTP, Explicit FTPS, Implicit FTPS (Android only), or SFTP server must be the same ports you enter when creating a relay server in the Workspace ONE UEM console.</p> </div>
<b>User</b>	Enter the server username.
<b>Password</b>	Enter the server password.
<b>Path</b>	<p>Enter the path for the server.</p> <p>This path must match the home directory path of the ftp user. For example, if the ftp user's home directory is C:\ftp\home\jdoe, the path entered into this field must be C:\ftp\home\jdoe.</p>
<b>Passive Mode</b>	Enable to force the client to establish both the data and command channels.

Setting	Description
<b>Verify Server</b>	<p>This setting is only visible when <b>Protocol</b> is set to FTPS.</p> <p>Enable to ensure the connection is trusted and there are no SSL errors.</p> <p>If left unchecked, then the certificate used to encrypt the data can be untrusted and data can still be sent.</p>

- For a push server, select the **Console Connection** tab and complete the settings. This is the information that the UEM console uses to authenticate with the FTP(S) server when pushing apps and content. The settings are typically identical to the **Device Connection** tab.

Press the **Test Connection** button to test your Console Connection to the push server. Each step of the connection is tested and the results are displayed to help with troubleshooting connection issues.

Press the **Export** button on the Test Connection page to export the data from the test as a CSV file.

- For a pull server, select the **Pull Connection** tab and complete the settings.

Settings	Descriptions
<b>Pull Local Directory</b>	Enter the local directory path for the server.
<b>Pull Discovery Text</b>	<p>Enter the IP addresses or the MAC addresses of the server. Separate each address with commas.</p> <p>IP addresses use periods as normal but MAC addresses do not use any punctuation in this form.</p>
<b>Pull Frequency</b>	Enter the frequency in minutes that the pull server should check with the UEM console for changes in the product.

- Select **Save**.

## Pull Service Based Relay Server Configuration

Pull service-based relay servers periodically contact the Workspace ONE™ UEM console to check for new products, profiles, files, actions, and applications assigned to devices under the pull relay servers purview. Configure a pull server to deliver content to devices without excessive bandwidth use.

If you make changes or additions, the server creates an outbound connection to the UEM console to download the new content to the server before pushing it to its devices. Pull service is best used when traversing any NAT firewall or SaaS to on-premises hybrid environments because SaaS customers typically do not want the service to tie-up bandwidth when content is delivered from Workspace ONE UEM to the store server.

### Pull Relay Server Security

Client-server applications such as Workspace ONE UEM use the transport layer security (TLS) cryptographic protocol to communicate across a network. TLS is supported by the file transfer protocol (FTP), file transfer protocol over SSL (FTPS), and SSH file transfer protocol (SFTP).

These file transfer protocols only secure those parts of the process where data is in transit between the client and the server. Because of this limitation, VMware recommends the use of OS-level disk encryption. There are several operating system-specific tools available (for example BitLocker for Windows, GnuPG for Linux).

To create a pull relay server, you must first have an FTP, Explicit FTPS, or SFTP server to function as the relay server. FTP (S) servers must be compliant with RFC 959 and RFC 2228 set by the Internet Engineering Task Force.

**Important:** The ports you configure when you create your FTP, Explicit FTPS, Implicit FTPS (Android only), or SFTP server must be the same ports you enter when creating a relay server in the Workspace ONE UEM console.

The process covers the installation of one server at a time. For bulk installation, you must use a third-party application. Workspace ONE UEM supports importing servers in bulk through the Bulk Import option. See [Batch Import Relay Servers on page 13](#) for more information.

## Create a Windows-Based Pull Service Relay Server

Configure a pull service relay server using a Windows FTP, Explicit FTPS, or SFTP server for use with product provisioning and staging. The pull service must be installed before you integrate the server with the Workspace ONE™ UEM console.

### Prerequisites

- An FTP, Explicit FTPS, or SFTP server. Workspace ONE UEM does not support Implicit FTPS Windows-based relay servers.
- .NET must be installed on Windows-based servers.
- The relay server requires network access between the server (in-store, distribution center, and so on) and to the Workspace ONE UEM SaaS environment.
- Each server requires disk storage of 2 MB for the pull server installer and hard disk space for all the content pulled to the server.

### Process

To create a windows-based pull relay server, take the following steps.

1. Configure an FTP, Explicit FTPS, or SFTP server. You must create an FTP user with read/write/delete permissions for both the directory and the files used in the relay server. This FTP user must have a user name and password for authentication. Note the home directory of the user for use in configuring the pull service.
2. Navigate to **Groups & Settings > All Settings > System > Enterprise Integration > Pull Service Installers**.
3. Download the Windows Pull Service Installer and the Configuration file onto the server using your preferred server management system.
4. Open the XML config file and update the IP Address with your console server FQDN, for example, cn274.awmdm.com.

```
<PullConfiguration>
<libraryPath>C:\AirWatch\PullService\</libraryPath>
<endPointAddress>https://[endpoint URL]/contentpull /</endPointAddress>
</PullConfiguration>
```

5. Run the WindowsPullServiceInstaller.exe.  
.NET is installed before the MSI is extracted.
6. Navigate to **Devices > Staging & Provisioning > Relay Servers > Undiscovered Pull Relay Servers**. If you have configured the FTP, Explicit FTPS, or SFTP server correctly, it provides feedback to this effect. If you do not see your server displayed, check your configuration settings.
7. Configure the relay server as a pull relay server in the UEM console. See [Configure a Relay Server on page 7](#) for more details.

If you are using the silent install from the command prompt, use the following commands:

- WindowsPullServiceInstaller.exe /s /v"/qn/"
- To include log: WindowsPullServiceInstaller.exe /s /v"/qn" /l WindowsPullServiceInstaller.txt"

The installer looks for the PullserviceInstaller.config file in the installer execution directory. If the file is missing, the installer prompts you to let you know the file is missing.

## Create a Linux-Based Pull Service Relay Server

Configure a pull service relay server using a Linux FTP, Explicit FTPS, or SFTP server for use with product provisioning and staging. The pull service must be installed before you integrate the server with the Workspace ONE™ UEM console.

### Prerequisites

- An FTP, Explicit FTPS, Implicit FTPS, or SFTP server.
- Linux-based servers must run either CentOS or SLES 11 SP3.
- Java 8+ must be installed on Linux-based servers.
- The relay server requires network access between the server (in-store, distribution center, and so on) and to the Workspace ONE UEM SaaS environment.
- Each server requires disk storage of 2 MB for the pull server installer and hard disk space for all the content pulled to the server.

### Process

To create a Linux-based pull relay server, take the following steps.

1. Configure an FTP, Explicit FTPS, or SFTP server. You must create an FTP user with read/write/delete permissions for both the directory and the files used in the relay server. This FTP user must have a user name and password for authentication. Note the home directory of the user for use in configuring the pull service.
2. Navigate to **Groups & Settings > All Settings > System > Enterprise Integration > Pull Service Installers**.
3. Download the Linux Pull Service Installer and the Configuration file onto the server using your preferred server management system.
4. Open the XML config file and update the IP Address with your console server FQDN, for example, cn274.awmdm.com.

```
<PullConfiguration>
```

```
<libraryPath>C:\AirWatch\PullService\</libraryPath>
<endPointAddress>https://[endpoint URL]/contentpull /</endPointAddress>
</PullConfiguration>
```

5. In the command prompt, enter the following.

```
sudo ./LinuxPullServerInstaller.bin
```

Alternatively, enter the following command to install silently.

```
sudo ./LinuxPullServerInstaller.bin -I silent
```

6. Follow the instructions prompted by the installer, including the optional configuration of a proxy server. If you want to use a proxy server, supply the host, port, and authentication information when prompted.
7. Navigate to **Devices > Staging & Provisioning > Relay Servers > Undiscovered Pull Relay Servers**. If you have configured the FTP, Explicit FTPS, or SFTP server correctly, it provides feedback to this effect. If you do not see your server displayed, check your configuration settings.
8. Configure the relay server as a pull relay server in the UEM console. See [Configure a Relay Server on page 7](#) for more details.

The installer looks for the PullserviceInstaller.config file in the installer execution directory. If the file is missing, the installer prompts you to let you know the file is missing.

## Move an Existing Pull Relay Server From One Organization Group to Another

You can move an existing pull relay server installed with the Windows or new Linux installer by taking the following steps.

1. Delete the existing pull relay server from the original OG on the console.  
Once it is deleted, the pull discovery text that belongs to the pull service starts appearing on the undiscovered pull discovery page at Global OG.
2. Navigate to **Devices > Staging & Provisioning > Relay Servers > Undiscovered Pull Relay Servers** and locate the server by searching for your IP address (only available for dedicated SaaS or On-premises).
3. Copy the pull discovery text that includes the IP address of your selected server.
4. Create a relay server in the new OG and activate it.  
After activating the relay server in the new OG, the pull service discovery text listed in the Undiscovered Pull Relay Servers page disappears.

## Batch Import Relay Servers

The Relay Server Import feature loads relay servers into the system in bulk. Make sure to associate the relay server users with an organization group.

Save all files in CSV format before importing.

To bulk import relay servers, take the following steps.

1. Navigate to **Devices > Staging & Provisioning > Relay Servers > List View** and select **Batch Import**.
2. Enter a **Batch Name**.
3. Enter a **Batch Description**.
4. Select **Choose File** to upload the **Batch File**. Batch files must be in CSV format. Select the **Information** icon (i) to download a template.
5. Select **Save** to upload the batch import.

## Remote Viewing Files on Relay Server

View files sent to a relay server for distribution to devices through the Remote File Viewer.

To access the Remote File Viewer, take the following steps.

1. Navigate to **Devices > Staging & Provisioning > Relay Servers > List View**.
2. Select the server you are interested in viewing by clicking the radio button to the left of the Active indicator, above the Edit pencil icon.
3. Select the **More Actions** button.
4. Select **Remote File List** to open the Remote File List for your selected relay server.

### FTPS

Folders:

- /ftp\_awtestact

RelayServerPath not found: /ftp\_awtestact





















RSFileName not found	RSFileSize not found	RSDateModified not found
/ftp_awtestact/20g_63525421737000...	419	2/20/2014 11:02:00 AM
/ftp_awtestact/ADV_20g_635254217...	429	2/20/2014 11:02:00 AM
/ftp_awtestact/ADV_JAKE14_635282...	432	2/20/2014 11:02:00 AM
/ftp_awtestact/ADV_PearceStagingA...	387	2/20/2014 2:51:00 PM
/ftp_awtestact/ADV_PearceStagingA...	387	2/24/2014 3:32:00 PM
/ftp_awtestact/ADV_stageStatus_63...	436	2/20/2014 11:02:00 AM
/ftp_awtestact/AirWatchCoreAgentW...	398	2/20/2014 2:51:00 PM
/ftp_awtestact/AirWatchCoreAgentW...	674	2/20/2014 2:51:00 PM
/ftp_awtestact/AirWatchCoreAgentW...	679	2/24/2014 3:32:00 PM
/ftp_awtestact/airwatch_client_4_5_...	1055	2/20/2014 2:51:00 PM
/ftp_awtestact/AnandStaging_63521...	357	2/20/2014 2:51:00 PM
/ftp_awtestact/AndroidStaging_6352...	429	2/20/2014 2:51:00 PM
/ftp_awtestact/Android_awatl_1_325...	411	2/24/2014 3:32:00 PM

## Relay Server Management




Maintaining Relay Servers keeps your products running smoothly so your devices remain up-to-date.

### Relay Server Status

After creating a relay server, refresh the relay server detail page to get the status of the connection.

		Primary Relay Server	Pull	FTP://11.111.1.111/Example	Akron		
							
		Warehouse 1	Push	FTP://11.111.1.111/Example	rickdr4		
							
		Warehouse 2	Push	FTP://11.111.1.111/Example	aaron		
							
		Warehouse 3	Push	FTP://11.111.1.111/Example	aaron		
							


The **Source Server** and **Relay Server** statuses are as follows:

Settings	Descriptions	
Indicator	Source Server	Relay Server
	Last retrieval from server succeeded.	Last file sync with server succeeded.
	Retrieval from server in progress.	File sync with server in progress
	Last retrieval failed.	Last file sync failed.

Once the check mark displays for both source server and relay server, the product components are available for distribution to the end-user device.

### Advanced Info

You can access the **Advanced Info** action for more detailed information pertaining to the server. This action can be found in the **More Actions** options drop-down available after selecting a relay server.. The Advanced Info action displays the **Queued Count** of files, the **Last Error Code** displayed, and the **Last Error Description**.

Relay Server Advanced Information		
Content Delivery Info		
Queued Count	0	
Last Error Code	0	
Last Error Description	Success	

# Chapter 3:

## Device Staging

You can stage a device to enroll it and prepare it for production use quickly. A staging package connects a device to a Wi-Fi connection, installs the AirWatch Agent, and enrolls the device without end-user input.

### Staging Basics

The Rugged Enrollment Configuration Wizard simplifies creating staging packages. With the wizard, everything you need for a staging package is created in a step-by-step process.

Staging packages are created as part of the product provisioning process. You can include profiles, applications, and files/actions as part of the staging package depending on the device platform.

You have several methods for enrolling a rugged device through staging. Barcode Enrollment creates a staging package associated with a barcode that you scan to stage the device. On-Demand staging uses the Rapid Deployment Client (RD Client) to download the staging package to your Zebra Windows Rugged or Motorola devices. The Stage Now client is exclusive to Android devices with Zebra MX version 7.1+ under Android Nougat and later. Sideloaded packages are transferred to a device instead of being scanned or downloaded.

For more information on the Stage Now client, see [Zebra Stage Now on page 17](#).

### Rugged Enrollment Configuration Wizard

Simplify rugged device enrollment through the Rugged Enrollment Configuration wizard. This wizard helps you complete each step in creating a staging package for your Android Rugged and Windows Rugged devices. The wizard supports QR code enrollment (Android only), barcode enrollment, sideload staging, and web enrollment (Windows Rugged only). For more information, see [Use the Enrollment Configuration Wizard on page 19](#).

### Staging Configuration

If you are not using the Rugged Enrollment Configuration Wizard, you must manually create a staging package. The staging package contains all the relevant enrollment information for devices. After creating a staging package, you install the package onto devices using barcode staging, sideload staging, or on-demand staging. For more information, see [Create a Manual Staging Package on page 22](#).



## Advanced Staging

As part of creating a staging package, you can add more instructions and files to the staging package. These advanced components enhance the actions taken during enrollment. For more information, see [Configure Advanced Staging on page 23](#).

## Staging Wi-Fi Profile

It is mandatory that your staging package includes a Wi-Fi profile. This profile configures the device to connect to the network the device uses to access the relay server to download the AirWatch Agent and enroll. For more information, see [Create a Wi-Fi Profile for Staging on page 24](#).

## QR Code Staging

You can create a QR Code to scan to begin the auto-enrollment process for your Android 7.0 or later Work Managed devices. These codes simplify staging devices into a quick scan of a QR Code to configure the device using a created staging package. For more information, see [QR Code Staging](#).

## Barcode Staging

You can create a barcode to scan to begin the auto-enrollment process for your Motorola and Zebra rugged devices. The barcodes simplify staging devices into a quick scan of a barcode to configure the device using a created staging package. For more information, see [Barcode Staging on page 25](#).

## On-Demand Staging

On-demand enrollment allows Motorola and Zebra rugged devices to scan a network or ActiveSync connection for a broadcast staging package. For more information, see [On-Demand Staging on page 26](#).

## Sideload Staging

You can create a sideload staging package to install onto devices to begin the auto-enrollment process for your rugged devices. The sideload staging packages simplify enrollment by combining all the required components into one. For more information, see [Sideload Staging Packages on page 28](#).

## Zebra Stage Now

The Stage Now staging client is Zebra's next generation Android solution for staging Zebra devices and preparing them for production use. Workspace ONE™ UEM supports Stage Now given the following conditions and limitations.

## Prerequisites

- Zebra devices must be running Android Nougat with MX version 7.1 or later.
- If you want to enroll your Zebra devices using a Stage Now barcode, you must have Android Agent version 8.2 or later uploaded to the console as an Agent Package.
- Zebra devices running Android Marshmallow and below must continue to use Rapid Deployment as the default staging client.
- Ensure the **Stage Now URL** setting, found in **Groups & Settings > All Settings > System > Advanced > Site URLs**, is set to the appropriate URL.
  - If your on premises environment is configuring your own Stage Now server, then place your custom URL in this field.
  - If your on premises environment is not configuring your own Stage Now server, then you simply must open your networks to allow access to the URL listed here.
  - SaaS environments do not need to change this text box.

For more information on Zebra Mobility, see [Zebra Mobility Extensions \(MX\)](#) and [Full MX Feature Matrix](#).

## Work Managed Device Mode

If you plan to enroll Zebra devices in Work Managed Device Mode with a Stage Now barcode, take the following steps.

1. Use the Organization Group selector to select the OG you want to configure for your Android devices.
2. Navigate to **Groups & Settings > All Settings > Devices & Users > Android > Android EMM Registration** and select the **Enrollment Restrictions** tab.
3. Complete the following settings.

Setting	Description
<b>Current Setting</b>	Select <b>Override</b> to affect changes to the OG you selected in step 1.
<b>Define devices that will use Android (Legacy) in this organization group</b>	<p>This setting determines how this OG treats Android (Legacy) devices. Select from among the following settings.</p> <p><b>Don't use Android (Legacy)</b> – This setting enables the <b>Device Owner Mode</b> slider on the <b>Generate Stage Now Barcode</b> screen and makes it uneditable. This forces all Android (Legacy) devices that enroll in this OG to be in Device Owner Mode (or Work Managed Device Mode).</p> <p><b>Always use Android (Legacy)</b> – This setting disables the <b>Device Owner Mode</b> slider from the <b>Generate Stage Now Barcode</b> screen and makes it uneditable. This forces all Android (Legacy) devices that enroll in this OG to be in Device Admin Mode.</p> <p><b>Exempt smart groups from Android (Legacy)</b> – This setting enables the <b>Device Owner Mode</b> slider on the <b>Generate Stage Now Barcode</b> screen and makes it editable, allowing you the choice of enrolling Android devices in Device Owner Mode (Work Managed Device Mode) or enrolling them in Device Admin Mode.</p>

- The above setting configures Stage Now to function correctly with Work Managed Device Mode.

You can optionally continue to the next step of making a Stage Now barcode by proceeding to the next step, [Generate a Barcode Staging Package Using the Enrollment Configuration Wizard on page 20](#).

## Use the Enrollment Configuration Wizard

Simplify rugged device enrollment through the Enrollment Configuration wizard. This wizard helps you complete each step in creating a staging package for your Android and Windows Rugged devices.

To use the Enrollment Configuration Wizard.

- Navigate to **Devices > Staging & Provisioning > Staging** and select the **Configure Enrollment** button.
- Select the device platform you want.
- Select the staging enrollment type.
  - [QR Code](#) – Create a QR Code to scan with your Android Work Managed devices to quickly stage the device. The wizard simplifies the configuration process.
  - [Barcode](#) – Create a barcode to scan with your Zebra rugged devices to quickly stage the device. The wizard simplifies the barcode configuration process.
  - [Sideload](#) – Create a sideload staging package to download and install onto a device to automatically configure and enroll the rugged device.
- Select **Configure**.

The settings you must configure change based on the enrollment type selected.

### Generate a QR Code Using the Enrollment Configuration Wizard

After selecting QR Code enrollment in the Enrollment Configuration wizard, create a QR Code to scan with your Android 7.0 or later devices to stage the device quickly. The wizard simplifies the staging configuration process.

To create a QR code using the wizard.

- After taking note of the prerequisites, select **Configure** to begin.
- You can connect the device to **Wi-Fi** prior to enrollment by enabling the Wi-Fi toggle. This enabling action displays the following options.

Setting	Description
<b>SSID</b>	Enter the Service Set Identifier, more commonly known as the name of the Wi-Fi Network.
<b>Password</b>	Enter the Wi-Fi password for the entered SSID.

- Select **Next**.
- Select the **AirWatch Agent** to push to devices during staging. The default selection is **Use latest AirWatch Agent**. If you do not have an AirWatch Agent added, select **Hosted on an external URL** and enter the address in the **URL** text box to point to an externally-hosted AirWatch Agent Package.
- Select **Next**.

- Set the **Enrollment Details** settings. To use token-based authentication, leave both options disabled.

Setting	Description
<b>Configure Organization Group</b>	
<b>Organization Group</b>	Enable and select the organization group the QR Code staging package uses.
<b>Configure Login Credentials</b>	
<b>User name</b>	Enable to configure login credentials. Enter the Workspace ONE UEM account user name.
<b>Password</b>	Enter the corresponding password.
<b>System Apps</b>	Applies to Work Managed devices only. You can <b>Enable</b> to keep non-critical system applications installed on your work managed device. Select <b>Disable</b> to remove these apps.

- Select **Next**.
- The **Summary** page allows you to **Download File** of the PDF. You can also **View PDF** to see a preview of your **QR Code Format** selections.

## Generate a Barcode Staging Package Using the Enrollment Configuration Wizard

After selecting Barcode enrollment in the [Enrollment Configuration wizard](#), create a barcode to scan with your Zebra rugged devices to stage the device quickly. The wizard simplifies the staging configuration process.

To create a barcode using the wizard.

- After taking note of the prerequisites, select **Configure** to begin.
- Select the **Relay Server** to use to stage the devices.  
The list of relay servers populates from any relay servers created for the organization group or the parent organization groups. If you do not have a relay server created, select **Add Relay Server**.
- Select **Next**.
- Select a **Wi-Fi Profile** that devices use to connect to the relay server and download the AirWatch Agent.  
If you do not have a Wi-Fi profile created, select **Add Wi-Fi profile**. You cannot create a Wi-Fi profile through the wizard that uses certificate authentication. The Wi-Fi profile created is used for staging and remains on the device after enrollment.
- Select **Next**.
- Select the **AirWatch Agent** to push to devices during staging.  
If you do not have an AirWatch Agent added, select **Add AirWatch Agent** to upload an AirWatch Agent Package if necessary.  
Download the latest version of the AirWatch Agent. Contact your Account Manager or Workspace ONE™ UEM Support for access.
- Select **Next**.
- Enter the **Stage User** credentials.

Settings	Descriptions
<b>Name</b>	Enter the name of the staging package.
<b>Description</b>	Enter a description of the staging package.
<b>Owned By</b>	Select the organization group that owns the staging package.
<b>Enrollment User</b>	Enter the user name of the user. If you do not have a user, select <b>Add User</b> . The user must be a basic user account. Do not use staging users or multi-user staging.
<b>Password</b>	Enter the password of the user.

9. Select **Next**.
10. Set the **Barcode** settings.

Organization Group	Select the organization group the staging package uses.
<b>Organization Group</b>	Select the organization group the staging package uses.
<b>Universal Barcode</b>	Enable to create a universal barcode enrollment so devices can be enrolled without automatically assigning an organization group. This allows you to enroll devices without needing a Barcode enrollment for each organization group.  With this setting enabled, the agent prompts you to enter an organization group after beginning the staging process. If you are enrolling devices into Android (Legacy) with this barcode, care should be taken to only select an OG that is configured for Android (Legacy) enrollment.
<b>Require Password</b>	Enable to create an alphanumeric password (maximum 99 characters) to use to unlock the staging package encryption on the end-user device immediately after enrollment.
<b>Barcode Format</b>	Select the barcode format for the devices you want to enroll.

11. Select **Save**.
12. The **Summary** page allows you to **Download File** of the PDF. You can also **View PDF** to see a preview of your **Barcode Format** selections.
13. If you want to make a Stage Now barcode for Zebra devices using the options you have selected above, you must close the Enrollment Wizard and proceed to the [Generate a Barcode Staging Package on page 25](#) step.

## Generate a Sideload Staging Package Using the Enrollment Configuration Wizard

After selecting Sideload enrollment in the [Enrollment Configuration wizard](#), create a sideload staging package to configure and enroll the rugged device for Android legacy devices only. The wizard simplifies the staging configuration process.

To create a sideload staging package using the wizard.

1. Select a **Wi-Fi profile** that devices use to connect to the relay server and download the AirWatch Agent.  
If you do not have a Wi-Fi profile created, select **Create Wi-Fi profile**. You cannot create a Wi-Fi profile that uses certificate authentication through the wizard. The Wi-Fi profile created is used for staging and remains on the device after enrollment.

2. Select **Next**.

3. Select the **AirWatch Agent** to push to devices during staging.

If you do not have an AirWatch Agent added, select **Add AirWatch Agent** to upload an AirWatch Agent Package if necessary.

Download the latest version of the AirWatch Agent. Contact your Account Manager or Workspace ONE™ UEM Support for access.

4. Select **Next**.

5. Enter the Stage User credentials.

Settings	Descriptions
<b>Name</b>	Enter the name of the staging package.
<b>Description</b>	Enter a description of the staging package.
<b>Owned By</b>	Select the organization group that owns the staging package.
<b>Enrollment User</b>	Enter the user name of the user. The user must be a basic user account. Do not use staging users or multi-user staging.
<b>Password</b>	Enter the password of the user.

6. Select **Next**.

7. Enter the Sideload settings.

Settings	Descriptions
<b>OG</b>	Select the organization group the staging package uses.
<b>Universal</b>	Enable to create a universal enrollment so devices can be enrolled without automatically assigning an organization group. This option allows you to enroll devices without needing a Sideload enrollment for each organization group. The agent prompts you to enter an organization group after the staging process begins.

## Create a Manual Staging Package

Create a staging package to configure your devices to connect to Wi-Fi, download the AirWatch Agent, and enroll automatically. This method does not use the Rugged Enrollment wizard.

To create a staging configuration, follow these steps.

1. Navigate to **Devices > Staging & Provisioning > Staging** and select the **Add Staging** button.
2. Select the Platform for which you want to create a staging configuration. The **Staging Add** screen displays.

- Complete the required text boxes on the **General** tab.

Settings	Description
<b>Name</b>	Enter the name of the staging configuration.
<b>Description</b>	Enter the description of the staging configuration.
<b>Owned By</b>	Select the organization group under which the staging package applies.
<b>Enrollment User</b>	Enter the user name of the enrollment user. You can search for and select an existing user by clicking the magnifying glass icon. You can also add a user by selecting <b>Add User</b> at the bottom of the drop-down menu.
<b>Password</b>	Enter the password for the enrollment user. You have the option of keeping the password redacted or displaying it as written.
<b>Agent</b>	Select an existing AirWatch Agent package from the drop-down listing to download during staging. You can also add an agent package by selecting <b>Add AirWatch Agent</b> at the bottom of the drop-down menu. These agents are uploaded as an Agent Package. See <a href="#">Upload the AirWatch Agent APF File on page 57</a> for more information.

- Select **Save**.

## Configure Advanced Staging

After creating a staging package, install product components as part of a staging package using the advance staging options.

To establish a list of ordered steps during staging, take the following steps.

- After finishing the **General** tab of the Staging window, navigate to **Devices > Staging & Provisioning > Staging** then select the **Add Staging** button and continue to the **Manifest** tab.
- Select the **Add** button.
- Select the action you want to take place during staging.

Settings	Description
Action Types	<p>Select one of the following action types.</p> <ul style="list-style-type: none"> <li>• <b>Install Profile</b></li> <li>• <b>Uninstall Profile</b></li> <li>• <b>Install Application</b></li> <li>• <b>Uninstall Application</b></li> <li>• <b>Install Files/Actions</b></li> <li>• <b>Uninstall Files/Actions</b></li> <li>• <b>Reboot</b></li> </ul> <p>For more information on creating files, profiles, actions, see <a href="#">Product Provisioning on page 33</a>.</p>
Profile	Select the profile to use in the staging configuration.
Application	Select the application to use in the staging configuration.
Persistent through enterprise reset	<p>Enable to keep the profile, application, or files/actions on the device through enterprise resets.</p> <p>For more information, see <a href="#">Product Persistence on page 37</a>.</p>

4. Select **Add** again to add additional actions to the manifest.
5. When you are finished adding actions, select **Save**.
6. View the newly created staging profile in the List View. Take additional actions on the profile from the menus on the right.
  - **Edit** your configuration.
  - **Copy** your profile.
  - Select **Barcode** and complete the text boxes on the **Generate Barcode** subpage.

## Create a Wi-Fi Profile for Staging

It is mandatory that your staging configuration includes a Wi-Fi profile. This configuration is the network the device uses to connect to the relay server to download the AirWatch Agent.

A Wi-Fi profile is either a staging or production profile. The staging Wi-Fi profile is created under the Products section and connects the device to the relay server so the device can receive the staging configuration. The production Wi-Fi profile is a normal Wi-Fi profile used at the device's daily use locations.

To create a Wi-Fi profile, navigate to the **General** settings of the profile. Set the **Profile Scope** of the Wi-Fi profile:

- **Staging Wi-Fi Profile** – Connects a device to the Wi-Fi used for staging.



- **Production Wi-Fi Profile** – Connects a device to the Wi-Fi used for everyday use. Production Wi-Fi profiles are under **Device > Profiles > List View > Add**. You must use auto deployment and publish the profile before staging a device with it.

## Barcode Staging

You can create a barcode and use it to auto-enroll your Motorola and Zebra rugged devices. Barcodes reduce the process to a quick scan which configures the device using a staging package.

You can also create universal barcode staging which does not automatically assign an organization group while enrolling the device. This generic barcode allows you to create one staging enrollment for all devices and assign the device to an organization group later, as needed.

Barcode enrollment is only available on devices running the Rapid Deployment Client or Zebra's Stage Now Client. These clients only support FTP and FTPS relay servers.

Use the Rugged Enrollment wizard to simplify the creation of barcode staging packages. The wizard enables you to create all the necessary components of a staging package in one place. For more information, see [Use the Enrollment Configuration Wizard on page 19](#).

Barcode enrollment is only supported on the following devices.

- Android
  - Zebra Rugged devices with MX running Android Marshmallow and earlier (Rapid Deployment barcodes only).
  - Zebra Rugged devices with MX version 7.1 or later running Android Nougat (Stage Now barcodes only).
  - Zebra Rugged devices with Android Agent version 8.2 or later (Stage Now barcodes only).

## Barcode Enrollment for Honeywell Android Devices

You can create barcodes to enroll Honeywell Android rugged devices in the AirWatch Console by using the EZconfig utility for Android legacy devices only. For more information, see the Knowledgebase Article on Honeywell Barcode Staging Package at <https://support.air-watch.com/articles/115001664568>.

### Generate a Barcode Staging Package

Create a barcode to scan with your Zebra rugged devices to stage the device quickly.

#### Prerequisites

You must create a staging package before you generate a barcode. See [Create a Manual Staging Package on page 22](#).

The staging user for the staging package must be a basic user account. Do not use staging users or multi-user staging.

#### Procedure

To generate a barcode, take the following steps.

1. Navigate to **Devices > Staging & Provisioning > Staging**.

2. Select the radio button to the left of the name of the staging package you created in step 8 with the [Configuration Enrollment Wizard in the previous topic](#). A new row of buttons displays under the **Add Staging** and **Configure Enrollment** buttons.
3. Select the **Barcode** or **Stage Now Barcode** for [Android Zebra devices](#) button.
4. Select the **Staging Options**.

Settings	Descriptions
<b>Organization Group</b>	Select the organization group the staging package uses.
<b>Universal Barcode</b>	<p>Enable to create a universal barcode enrollment so devices can be enrolled without automatically assigning an organization group. This allows you to enroll devices without needing a Barcode enrollment for each organization group.</p> <p>With this setting enabled, the agent prompts you to enter an organization group after beginning the staging process. If you are enrolling devices into Work Managed Mode with this barcode, care should be taken to select only an OG that has configured Android EMM Registration settings.</p> <p>Enabling this box repopulates the <b>Staging Relay Server</b> and <b>Staging Profile</b> with applicable options.</p>
<b>Staging Relay Server</b>	Select the staging relay server that hosts the staging content.
<b>Staging Profile</b>	Select the staging Wi-Fi profile to apply to the enrolled device.
<b>Require Password</b>	Enable to create an alphanumeric passphrase (maximum 99 characters) to use to unlock the staging package encryption on the end-user device.
<b>Device Owner Mode</b>	Enable to enroll the device into Android Work Managed mode. This option can only be enabled when the <b>Universal Barcode</b> option is enabled.

5. Select the **Barcode Format** options.
6. Android admins can enter the optional **Barcode Instructions** to be included on the barcode PDF output page.
7. Select **View PDF**. This generates a preview of the barcode PDF output page for end users to scan.
8. Select **Save** to save the PDF file.

## On-Demand Staging

On-Demand enrollment allows you to use a staging profile to stage a device without the use of a barcode. The Motorola and Zebra rugged device scans the network connection or an ActiveSync connection for the broadcast On-Demand staging package.

You can also create universal On-Demand enrollment to stage devices without automatically assigning an organization group when enrolling the device. This option allows you to create one on-demand enrollment for all devices and assign the device to an organization group as needed.

On-demand enrollment is only available on devices running a compatible staging client. The compatible staging client can only support FTP and FTPS relay servers.

## Create an On-Demand Staging Package

Create an on-demand staging package to stage a device over a network connection or an ActiveSync connection.

### Prerequisites

You must create a staging package before you create an on-demand enrollment package. For more information, see [Create a Manual Staging Package on page 22](#).

To use On-Demand Enrollment, take the following steps.

1. Navigate to **Devices > Staging & Provisioning > Staging**.
2. Find the staging configuration you want to use, select the radio button to the left of the Name, then select the **More Actions** button when it appears.
3. Select **On-Demand** from the drop-down menu.
4. Specify the staging options.

Settings	Description
<b>Organization Group</b>	Select the Workspace ONE™ UEM organization group in which the device enrolls.
<b>Universal Barcode</b>	<p>Enable to create a universal on-demand enrollment so devices can be enrolled without automatically assigning an OG. While the option is called universal barcode, there is no actual barcode in use in this functionality.</p> <p>Enabling universal barcode allows you to enroll devices without needing an on-demand enrollment for each OG. The agent will prompt you to enter an OG after beginning the staging process. Enabling this box repopulates the <b>Staging Relay Server</b> and <b>Staging Profile</b> with applicable options.</p>
<b>Staging Relay Server</b>	Select the relay server from which the device retrieves the agent and other staging content.
<b>Staging Profile</b>	Select the Wi-Fi profile to use during staging to connect to the relay server.

5. Select the **On-Demand** button to start the On-Demand Enrollment screen.
6. Select **Turn staging server on**.
7. On the device you want to enroll, start the supported staging client and use the following settings.

Settings	Description
<b>Search Connected Networks</b>	The staging client searches for an On-Demand staging server over any Wi-Fi profiles that exist on the device, or through LAN if cradled. Motorola devices include a generic Wi-Fi profile out of the box, which you use when setting up a Wi-Fi access point.
<b>Search Unconnected Networks</b>	The staging client searches for an On-Demand staging server using ActiveSync. The device must be cradled and connected to the admin's machine hosting the On-Demand server through USB.

Once a device is connected to an On-Demand server, the staging profile configuration passes to the device. The device then retrieves all staging content from the relay server. Once all staging content has been retrieved and installed, the device enrolls in Workspace ONE UEM.

## Sideload Staging Packages

You can create a sideload staging package to download and install onto devices to begin the auto-enrollment process for your Android legacy rugged devices only. The sideload staging packages simplify enrollment by combining all the required components into one.

You can also create universal barcode staging to stage devices with a generic barcode that does not automatically assign an organization group when enrolling the device. This allows you to create one staging enrollment for all devices and assign the device to an organization group as needed.

Simplify creating a barcode staging package by using the Rugged Enrollment wizard. The wizard allows you to create all the necessary components of a staging package in one place. For more information, see [Use the Enrollment Configuration Wizard on page 19](#).

You can use the Sideload Staging Utility for Windows Rugged devices to sideload a staging package easily. The utility simplifies the process of installing a sideloading package onto the device with simple step-by-step instructions.

### Generate a Sideload Staging Package Using the Configuration Wizard

After selecting Sideload as the staging enrollment type in the Enrollment Configuration wizard, create a sideload staging package to download and install onto a device to configure and enroll the rugged device automatically.

#### Prerequisites

You must create a staging package before you create a sideload staging package. See [Create a Manual Staging Package on page 22](#).

The staging user for the staging package must be a basic user account. Do not use staging users or multi-user staging.

#### Procedures

To create a side staging package, take the following steps.

1. Navigate to **Devices > Staging & Provisioning > Staging**.
2. Select a previous staging package that you want to create a sideloaded staging package for. Select the **More** option and select **Staging Side Load** from the drop-down.
3. Select the **Organization Group** to which this staging applies.
4. (Optional) Enable **Universal Barcode** to enable a universal enrollment so devices can be enrolled without automatically assigning an organization group. This allows you to enroll devices without needing a Sideload enrollment for each organization group. The agent will prompt you to enter an organization group after beginning the staging process.
5. Select **Download** to start downloading the zip file of the staging sideload.

### Install a Sideload Staging Package

After creating a sideload staging package and downloading it, install it onto the rugged device to begin the enrollment process.

For Android device staging, follow the steps below:

1. Download and install the Android Debug Bridge to the computer you want to use for staging devices.
2. Unzip the downloaded Sideload Staging ZIP file.

3. Depending upon the version of the OS that your device is running, you might need to download an updated stage.bat file from my Workspace ONE™ Resource Portal. Visit <https://my.workspaceone.com> and search for "VMware AirWatch Stage.bat for Zebra Sideload Staging" and download this file. Verify that this stage.bat file is in the root folder of the unzipped Sideload Staging ZIP file.
4. Establish a USB debug connection to the Android device.  
USB debugging must be enabled on the Android device. The setting to enable this is in the device system settings under Developer Options.
5. Start the stage.bat file from the root folder of the unzipped Sideload Staging ZIP file.
6. The stage.bat file copies files to the device and then uses intents to start the auto-enrollment process.
7. The Workspace ONE UEM auto-enrollment screen displays on the device and shows progress.
8. When auto-enrollment is complete, the AirWatch Agent displays the main details screen.

This script installs the MX Service and agent then applies the Wi-Fi profile you defined in the staging manifest and any other manifest items. Once the Wi-Fi connects, the device auto-enrolls into Workspace ONE UEM.

## Enroll with Sideload Staging for Honeywell Devices

Enroll your Honeywell Android Rugged devices using a sideload staging package. Sideload staging configures your Honeywell Android Rugged devices to download the AirWatch Agent and enroll automatically.

### Prerequisites

- You must create a staging package before you create a sideload staging package. See [Create a Manual Staging Package on page 22](#).
- Download the staging package and unzip the file to access the credentials.bin file.
- Download the latest Agent APK available on Workspace ONE™ UEM Resources. Contact your Workspace ONE UEM account manager for access to the APK.
- Download the latest Honeywell APK available on Workspace ONE UEM Resources. Contact your Workspace ONE UEM account manager for access to the APK.
- Download and install the Android Debug Bridge (ADB).

### Procedures

1. Create a folder containing the following.
  - Latest AirWatch Agent for Android APK.
  - Latest Honeywell APK.
  - Credentials.bin from the staging package.
2. Open a text editor such as Notepad. Copy the following chunk of text and paste it into the blank notepad.

```
adb push credentials.bin /sdcard/credentials.bin
adb install HoneywellService.apk
adb shell am start -a android.intent.action.MAIN -n
com.airwatch.admin.honeywell/.HoneywellActivity
adb install Agent.apk
adb shell am start -a android.intent.action.MAIN -n
com.airwatch.androidagent/com.airwatch.agent.ui.activity.SplashActivity -e hideui true
adb shell pm grant com.airwatch.androidagent android.permission.READ_EXTERNAL_STORAGE
adb shell am broadcast -a com.airwatch.agent.action.IMPORT_CREDENTIAL_XML -e file
/sdcard/credentials.bin --user 0
adb shell am broadcast -a com.airwatch.agent.action.AUTO_ENROLL --user 0
```

Change the filenames and storage locations as needed.

3. Save the file as `autoenroll_Honeywell.bat` in the same directory as the other files.
4. Connect a Honeywell Android Rugged device to your PC using an ADB connection. Ensure that the device is connected to Wi-Fi.
5. Run the `autoenroll_Honeywell.bat` file.

## Sideload Staging with Platform OEM Service

You can set up a Sideload Staging bundle for devices using the Generic OEM Service. This procedure is not supportive of Advanced Staging.

### Step 1 - Get the Enrollment Credentials

1. Create a Staging bundle in the console.
2. Download the Sideload Staging Package.
3. Unzip the Sideload Staging Package file and copy the 'credentials.bin' file inside the enrollment folder. Save this file for later.

### Step 2 - Collect the Necessary Files for the Device

1. Get the latest Agent APK.
2. Get the OEM Service APK for your device.
3. Get the credentials.bin from the preceding Step 1, number 3.
4. Place all these files in a folder on your PC.

### Step 3 - Create Your Auto-Enroll BAT File

1. Using a text editor, add the following lines (change the filenames and storage locations based on your own configuration).

```
adb push credentials.bin /sdcard/credentials.bin
adb install OEMService.apk
adb shell am start -a android.intent.action.MAIN -n com.airwatch.admin.awoem.[OEM_
NAME]/com.airwatch.admin.awoem.PlatformOEMActivity -e hideui true
```

\*If you are using POEM v3.2 or higher, use this intent instead:

```
adb shell am start -a com.airwatch.START_AIRWATCH_SERVICE
```

```
adb install Agent.apk
adb shell am start -a android.intent.action.MAIN -n
com.airwatch.androidagent/com.airwatch.agent.ui.activity.SplashActivity -e hideui true
adb shell am broadcast -a com.airwatch.agent.action.IMPORT_CREDENTIAL_XML -e file /sdcard/credentials.bin --user
0
adb shell am broadcast -a com.airwatch.agent.action.AUTO_ENROLL --user 0
```

2. Save the file as autoenroll\_OEM.bat in the same directory as the other files.

\*On Mac, it must be an SH file and run in Terminal.

#### Step 4 - Auto-Enroll the Device

1. Connect the device to Wifi.
2. Connect the device to the PC via an ADB connection.
3. Run the `autoenroll_OEM.bat` file.

## Android Device Enrollment with the AirWatch Agent

The AirWatch Agent application facilitates enrollment and allows for real-time management and access to relevant device information. The enrollment process secures a connection between Android devices and your Workspace ONE UEM environment.

Android Rugged devices also support using the AirWatch Agent for Android to enroll devices. Workspace ONE UEM recommends using the Product Provisioning system to enroll devices through staging packages as the AirWatch Agent enrollment method does not support some Product Provisioning functionality.

- WifiConfig cannot configure Fusion settings for Motorola devices. You must push the WifiConfig.apk as an internal app after enrollment to configure the settings. Extract the WifiConfig.apk from a sideload staging bundle inside the Agent folder of a device and upload it to the Workspace ONE UEMconsole as an internal app.
- Product Persistence does not support AirWatch Agent enrollment method. Products marked for persistence still download to the device but an Enterprise Reset removes all products. Persisted products do not automatically reinstall following an Enterprise Reset when the device reboots.
- Android Work Managed enrollment is supported provided Zebra's Stage Now staging client is used.



# Chapter 4:

## Product Provisioning

The main feature of the Product Provisioning system is creating an ordered installation of profiles, applications, and files/actions into one product to be pushed to devices based on the conditions you create.

### Product Provisioning Basics

Once products are created and activated, they are pushed to the device based on the conditions set. Conditions are an optional tool that determines when a product is downloaded and when it is installed. Content and Application provisioning by products can be pushed to devices through optional relay servers.

Products are pushed to devices that are chosen by smart group assignments. These groups control which devices get which product based on how the group is created. You can also use Assignment Rules to further target your products to devices.

With the AirWatch Agent for Android v5.1+ or the AirWatch Agent for Windows Rugged v5.5+, interrupted products, known as orphaned products, automatically restarts and continues from where they were interrupted. This means that if a device shuts down or reboots for whatever reason during the middle of the processing of the product, the product automatically restarts.

**Important:** You must upload the content of the product before a product can be created.

### Profiles for Product Provisioning

The product provisioning system allows you to create profiles for your rugged devices. The profiles created for rugged devices are installed or uninstalled as part of a product. Profiles created under Products (**Devices > Staging & Provisioning > Components > Profiles**) are different than those created through the non-products process (**Devices > Profiles**). For more information, see [Product Provisioning Profiles on page 61](#).

### Files/Actions

You can install, configure, and upgrade devices by assigning files/actions to a product. The files/actions component also contains ways to manage the file system of a device. For more information, see [Files/Actions for Products on page 50](#).

## Applications

Product provisioning allows you to upload applications to the console for distribution as part of a product. Through product provisioning, you can upgrade and downgrade applications and remove them remotely. For more information, see [Application Provisioning on page 38](#).

## Product Conditions

A condition determines when the product or OS upgrade package should be downloaded and installed. Conditions are checked when a product is pushed to a device. For more information, see [Product Conditions on page 40](#).

## Create a Product

After creating the content you want to push to devices, create a product that controls when the content is pushed and the order of installation of the product. For more information, see [Create a Product on page 34](#).

## Product Persistence

Product Provisioning allows you to enable profiles, files/actions, and applications to remain on a device following an enterprise reset. Content marked to persist following an enterprise reset reinstalls following the device restart after the agent installs. Product Persistence only applies to specific Windows Rugged and Android devices. For more information, see [Product Persistence on page 37](#).

## Create a Product

After creating the content you want to push to devices, create a product that controls when the content is pushed. Creation of the product also defines the order in which the product is installed.

To edit a product, the product must be deactivated in the list view first.

To create and configure a product.

1. Navigate to **Devices > Staging & Provisioning > Product List View > Add Product**.
2. Select the Platform you want to create a staging configuration for.
3. Complete the General text boxes.

Setting	Description
<b>Name</b>	Enter a name for the product. The name cannot be longer than 255 characters.
<b>Description</b>	Enter a short description for the product.
<b>Managed By</b>	Select the organization group that can edit the product.
<b>Assigned Smart Groups</b>	Enter the smart groups the product provisions.

4. Select **Add Rules** to use **Assignment Rules** to control which devices receive the product.

Application rules can be applied to unmanaged applications installed on the device. These rules allow you to use system apps and third-party apps that are not managed by Workspace ONE™ UEM.

Setting	Description
<b>Add Rule</b>	Select to create a rule for product provisioning. Displays the <b>Attribute/Application</b> , <b>Operator</b> , and <b>Value</b> drop-down menus.
<b>Add Application Rule</b>	Select to create an application rule for product provisioning.  This allows you to require applications to have specific versions install on the device for the rule to pass. Displays the <b>Attribute/Application</b> , <b>Operator</b> , and <b>Value</b> drop-down menus.
<b>Add Logical Operator</b>	Select to display a drop-down menu of logical operators such as AND, OR, NOT, and parentheses. Allows for more complex rules.
<b>Attribute/Application</b>	This is the custom attribute or application used to designate which devices receive the product. Custom attributes are created separately.  Only internal applications display in the drop-down menu. You can use <b>Enter Manually</b> to enter the package ID of any application that should be present on the device.  For more information, see <a href="#">Custom Attributes on page 62</a> .
<b>Operator</b>	This operator compares the <b>Attribute</b> to the <b>Value</b> to determine if the device qualifies for the product.  <div> <p><b>Note:</b> There is a limitation on the less than (&lt;) and greater than (&gt;) operators. This limitation includes "less than or equal to" and "greater than or equal to" variants. These operators are mathematical in nature, which means they are effective at comparing numbers including integers. They cannot be used to compare non-numeric text strings. And while it is common for software versions to be represented with numbers indicating a graded versioning system (for example, 6.14.2), such representations are not numbers because they have more than one decimal point. These representations are actually text strings. Therefore, any assignment rule that compares software version numbers with multiple decimal points using greater than or less than operators (and their variants) can result in an error message.</p> </div>
<b>Value</b>	This is the value of the custom attribute. All values from all applicable devices are listed here for the <b>Attribute</b> selected for the rule.

5. Select **Save** to add the **Assignment Rule** to the product.
6. Select the **Manifest** tab.
7. Select **Add** to add actions to the **Manifest**. At least one manifest action is required.

Setting	Description
<b>Action Types</b>	<p>Select the Manifest action to add to the profile:</p> <ul style="list-style-type: none"> <li>• <b>Install Profile.</b></li> <li>• <b>Uninstall Profile.</b></li> <li>• <b>Install Applications.</b></li> <li>• <b>Uninstall Applications.</b></li> <li>• <b>Install Files/Actions</b> – This option runs the Install Manifest.</li> <li>• <b>Uninstall Files/Actions</b> – This option runs the Uninstall Manifest.</li> <li>• <b>Reboot.</b></li> </ul>
<b>Profile</b>	<p>Displays when the <b>Action Type</b> is set to Install Profile or Uninstall Profile.</p> <p>Enter the profile name.</p>
<b>Application</b>	<p>Displays when the <b>Action Type</b> is set to Install Application or Uninstall Application.</p> <p>Enter the application name.</p>
<b>Files/Actions</b>	<p>Displays when the <b>Action Type</b> is set to Install Files/Actions or Uninstall Files/Actions.</p> <p>Enter the application name.</p>
<b>Persistent through Enterprise Reset</b>	<p>Select whether you want the Profile to be <b>Persistent through enterprise reset</b> or not. For more information, see <a href="#">Product Persistence on page 37</a>.</p>

**Note:** Profiles and files/actions that were selected to persist through an Enterprise Reset are stored in the flash memory of the device upon install. Once a device initiates the restore process from an Enterprise Reset and installs the AirWatch Agent, any persisted files/actions will be restored after Profiles are installed even if they were previously uninstalled. For more information, see [Product Persistence on page 37](#).

8. Add additional **Manifest** items if desired.
9. You can adjust the order of manifest steps using the up and down arrows in the Manifest list view. You can also edit or delete a manifest step.
10. Select the **Conditions** tab if you want to use conditions with your product. These conditions are optional and are not required to create and use a product.
11. Select **Add** to add either **Download Conditions**, **Install Conditions**, or both.
  - A **Download Condition** determines when a product should be downloaded but not installed on a device.
  - An **Install Condition** determines when a product should be installed on a device.
12. Select the **Deployment** tab if you want to control the time and date that products are activated and deactivated. This tab is optional and is not required to create and use a product.

Setting	Description
<b>Activation Date</b>	<p>Enter the time when a product automatically activates for device job processing.</p> <p>If the activation date is defined and the product is saved, the product stays inactive until the activation date is met according to the Workspace ONE UEM server time. The policy engine wakes up and automatically activates the product. You can manually activate products with activation dates beforehand. Manually activating a product overrides the activation date.</p>
<b>Deactivation Date</b>	<p>Enter the time when a product automatically deactivates from current and new device job processing.</p> <p>If the deactivation date is defined and the product is saved and currently active, it stays active until the deactivation date is met according to the Workspace ONE UEM server time. The policy engine wakes up and automatically deactivates the product. You can manually deactivate products with deactivation dates beforehand. Manually deactivating a product overrides the deactivation date.</p> <p>A deactivation date cannot be set earlier than the activation date.</p>
<b>Pause/Resume</b>	<p>Enable to ensure that an interrupted product provisioning due to Wi-Fi connectivity issues will be retried.</p> <p>Enabling this feature sets the product to retry for up to 50 attempts before marking the product as failed and alerting you. If this is not enabled, the product keeps retrying indefinitely and will not alert you that there is an error.</p>
<b>Product Type</b>	<p>Determine if a product is <b>Required</b> or <b>Elective</b>.</p> <p>A required product provisions to assigned devices when deployment settings are met. An elective product is only provisioned when it is manually activated on the Device Details View of a provisioned device.</p>
<b>Deployment Mode</b>	<p>Select from the following how the product is to be deployed.</p> <p><b>Relay Server with Device Services Backup</b> – This is the default deployment mode. The device attempts to receive the product from the relay server initially, making 5 separate attempts, then falling back to device services as a secondary source.</p> <p><b>Relay Server Only</b> – The device only makes attempts to receive the product from the relay server. The device never requests this product from device services.</p>

13. Select the **Dependencies** tab if you want to set the product to only provision devices that have other products provisioned as well.
  - Select **Add** to add a dependent product. You can add as many dependent products as you want.
14. Select to deploy the product immediately by selecting **Activate** or wait to deploy later and select **Save**.

## Product Persistence

Product Provisioning allows you to enable profiles, files/actions, and applications to remain on a device following an enterprise reset. Content marked to persist following an enterprise reset reinstalls following the device restart after the agent installs.

Product Persistence is ideal for help-desk type support as it allows the device to be wiped to clear away any problems without needing the device to be re-enrolled and products provisioned again.

Product Persistence for Android only applies to legacy Motorola, Zebra, and Honeywell devices.

Persistence works as follows.

1. A device must contain a staging configuration so that the agent and enrollment reinstall following the enterprise reset.  
Staging configurations automatically persist on a device.
2. Set to persist any profiles, files/actions, or apps that you want to remain on the device after the enterprise reset.
3. The device resets when the Enterprise Reset command is sent (see [Product Management](#)). After resetting, the restore process starts.
4. The AirWatch Agent for the device reinstalls during the restore process.
5. After the agent is installed, any persisted profiles, such as Wi-Fi, reinstall.
6. Any persisted files/actions or apps are reinstalled.

## Application Provisioning

Product provisioning allows you to upload applications to the console for distribution as part of a product. Through product provisioning, you can upgrade and downgrade applications and remove them remotely.

Silent install of applications is supported on Android Legacy devices with an OEM service application and Android Work Managed devices.

**Note:** Smart group assignment happens on the Product level and not on the Application level.

### Upload an Application

Applications added through product provisioning use the rules and restrictions of the product to manage installation. Add applications that you want installed onto devices as part of a product.

To add an Application, follow the steps detailed below:

1. Navigate to **Devices > Staging & Provisioning > Components > Applications** and select **Add Application**.
2. Enter who the application is **Managed By**.
3. Select **Upload** to browse for the **Application File**.
4. Select **Choose File** to add a local file or select **Link** to enter a link.
5. Select **Save** to finish uploading the application.
6. Select **Continue** to add the application to the Product Provisioning application list.

## Add New Application Versions

You can add a new version of an already uploaded application. This action enables you to push the newest version of an application to end users using the existing products you have already created.

To add a new version of an app to a product, follow the steps detailed below.

1. Navigate to **Devices > Staging & Provisioning > Components > Applications** and select **More**.
2. Select the **Add Version** option from the drop-down menu.
3. Upload the new version of the application as described in [Upload an Application on page 38](#).
4. Select **Save**.
5. Navigate to **Devices > Staging & Provisioning > Product List View** and find the product that contains the app you want to update. If necessary, use the filters to narrow your search.
6. Select the radio button to the left of the product name. This radio button selection displays some action buttons at the top of the **List View**.
7. Select the **Edit** action button. The **Edit product** screen displays.
8. In the **Manifest** tab, find the **Install Application** Action Type that contains the app you want to update and select the small blue pencil icon to the right of the **Description** column. The **Edit Manifest** screen displays.
9. In the **Application** text box, delete the app name. This action causes the drop-down menu to appear which now displays all versions of all applications in your entire Applications library.
10. Select the new version of the app that you uploaded in step 3 above.
11. Select the **Save** button. The **Edit product** screen now shows the **Manifest** that includes the new version of the app.
12. Select the **Activate** button. This action pushes the new version of the app to the devices provisioned with this product.

## Downgrade Applications Through Products

You can quickly roll back applications that have bugs or major issues through with product provisioning. Upload and assign multiple versions of the same application to devices to meet your organization needs.

Only Product Provisioning allows you to upload two versions of the same application as separate application items. Mobile Application Management through the Workspace ONE™ UEM console does not support this functionality.

To push previous versions of an app to a device through product provisioning, follow the steps detailed below:

1. Navigate to **Devices > Staging & Provisioning > Components > Applications** and select **Add Application**.
2. Upload the previous version of the application you want on devices. See [Upload an Application on page 38](#) for more information.
3. Create a Product containing the downgrade version of the app. See [Create a Product on page 34](#).
4. Activate the new product to push the downgrade version of the app to provisioned devices.

**Important:** Consider deactivating the product with the newer version of the app before activating the downgrade product. If both products are active at the same time, the products will attempt to keep pushing both versions.

## Delete Applications

Remove unwanted applications from your products. Workspace ONE™ UEM checks any attempt to delete an application against the list of active products.

To delete an application, it must be detached from all products.

1. Select the **Product** listed in the Warning prompt.
2. Select **Edit**.
3. Remove the application from the product.
4. Select **Save**.
5. Repeat for all products containing the application
6. Once the application detaches from all products, you can delete the application.

If an application is part of an active product, a warning prompt appears listing any product that uses the application.

## Product Conditions

A condition determines when the product or OS upgrade package should be downloaded and installed. Conditions are checked when a product is pushed to a device.

Your device fleet is not always readily available for maintenance. You could have devices in different time zones or countries. Since you cannot always ensure that a device is not in use when you push a product, you can use conditions to delay the download and installation.

These conditions defer the product download or installation until the device meets the criteria of the assigned condition. You can set the products to only download based on battery life, power adapters, user confirmation, and other criteria. The available conditions for your products vary based on the device platform.

### Conditions List View

You can view conditions from the list view by navigating to **Devices > Staging & Provisioning > Components > Conditions**. You can also edit and delete conditions from the list view.

Select the pencil icon () to the left of the name of the condition to open the **Edit Condition** screen.

Select the radio button to the far left of the condition to display the **Copy** and **Delete** buttons, offering more actions. Before you can delete a condition, you may have to detach it from one or more products.

### Create a Condition

Conditions enable you to set products to download and install on your device only when preset conditions are met. Create a condition to determine when a product downloads and installs onto your devices.

To create a condition, take the following steps.



1. Navigate to **Devices > Staging & Provisioning > Components > Conditions** and select **Add Condition**.
2. Select the Platform you want to create a condition for.
3. Complete the **Create Condition** Type settings.

Settings	Description
<b>Name</b>	Enter a name for the condition. The name cannot be longer than 255 characters.
<b>Description</b>	Enter a description for the condition.
<b>Condition</b>	<p>The type of condition affects the parameters on the <b>Condition Details</b> tab.</p> <ul style="list-style-type: none"> <li>• <b>Adapter Time.</b></li> <li>• <b>Battery Threshold*.</b></li> <li>• <b>Confirm.</b></li> <li>• <b>Power.</b></li> <li>• <b>Recurring Schedule*.</b></li> <li>• <b>Schedule.</b></li> <li>• <b>SD Card Encryption.</b></li> <li>• <b>Time.</b></li> </ul> <p>* Condition is only available for use in Event Actions. For more information, see <a href="#">Event Actions on page 47</a>.</p>
<b>Managed By</b>	Select the organization group that manages the condition.

4. Select **Next**.
5. Complete the **Create Condition** Details settings based on the condition type selected.

- **Adapter Time** – This condition type tests for various combinations of constraints related to **Network Adapters** including local date, time, and frequency on the device.

Settings	Description
<b>Specify scenario #1?</b>	<p>Set to <b>Specify this scenario</b> to begin configuring the condition scenario.</p> <p>Up to 5 scenarios may be entered, each with their own constraint choices.</p> <p>Each Scenario is an OR statement and each option inside a Scenario is an AND statement. For example, a device will check to see if Scenario #1 OR Scenario #2 is true. If Scenario #1 is true, it will check if all the constraints listed are true because they are AND statements.</p>
<b>Scenario description</b>	Enter a description for the adapter time scenario.
<b>Constrain Network Adapters?</b>	<p>Set to <b>Constrain based on the Best Connected Network Adapter</b> and configure the following.</p> <ul style="list-style-type: none"> <li>Specify any <b>Included or Excluded Network Adapters</b>. <ul style="list-style-type: none"> <li>Choose to either <b>Select Network Adapter Class</b> from a drop-down list or <b>Type in a Network Adapter Name</b>.</li> </ul> </li> <li>Up to five network adapters may be selected in the <b>Adapter selection method?</b> setting.</li> <li>For each adapter you want to include/exclude, choose between <b>Select a Network Adapter Class</b> drop-down list and entering a specific <b>Adapter name</b>.</li> </ul> <p>If you want to skip this kind of constraint, then select <b>Don't constrain based on the Best Connected Network Adapter</b>. Then you can proceed with defining another kind of constraint.</p>
<b>Constrain days of week?</b>	For each day of the week, choose whether it will be included or excluded.
<b>Constrain months?</b>	For each month, choose whether it will be included or excluded.
<b>Constrain days of month?</b>	Enter a <b>Start day of month?</b> and an <b>End day of month?</b> .
<b>Constrain years?</b>	Enter a <b>Start year?</b> and an <b>Last year?</b> .
<b>Constrain time of day?</b>	Enter the <b>Start hour?</b> , <b>Start minute?</b> , <b>End hour?</b> , and <b>End minute?</b> .
<b>Set frequency limit?</b>	<p>Ranges from <b>Every 15 Minutes</b> to <b>Every 1 Week</b>.</p> <p><b>Set frequency limit</b> is a mandatory setting. The Adapter Time condition will not function correctly without it.</p>

**Note:** ActiveSync and VPN Network Adapters are not supported under the Android platform.

- **Battery Threshold** - This condition type tests the device to see what level battery charge remains. You can test for charge levels *under* a defined threshold or *over* a defined threshold.

Settings	Description
<b>Battery Level</b>	Select between <b>Less than or Equal To</b> , <b>Greater Than or Equal To</b> , and <b>Between</b> to define a range of charge levels.
<b>Battery Percentage</b>	Enter a percentage between 1 and 100. When <b>Between</b> is selected, you must enter a range comprised of two percentage levels.

- **Confirm** – This condition type prompts the end user to determine whether or not the condition is met. This prompt is customizable so you can control what displays on the prompt.

Settings	Description
<b>Message to be displayed</b>	
<b>First line prompt</b>	Enter a header of the prompt
<b>Second line prompt</b>	Enter the body of the prompt.
<b>Third line prompt</b>	<p>If you enable a countdown, you can enter a countdown phrase into this setting.</p> <p>For example, "You have %count% seconds to comply" where %count% is the countdown.</p>
<b>Allow users to cancel action (s)?</b>	<p>Select <b>Yes</b> if you want to give users a chance to opt out of the action upon which this condition is placed.</p> <p>Select <b>No</b> to obligate users to accept the action.</p>
<b>Delay</b>	
<b>Delay (seconds)</b>	<p>Use this to delay for a specified time or until the end user makes a selection.</p> <p>If you enter a non-zero value, the prompt will wait for that value worth of seconds. Then if the end user does not make a selection in the time allowed, the condition is automatically considered not met.</p> <p>If a value of zero is entered, then the prompt displays indefinitely until the user makes a selection.</p>
<b>Enable countdown?</b>	<p>Select <b>Yes</b> to allow the delay time to be “counted” down on the device so the end user knows how much time is remaining to make a selection.</p> <p>Select <b>No</b> to hide the delay countdown.</p>

Settings	Description
<b>Defer Action</b>	
<b>Defer time</b>	<p>This controls the minimum time after the condition is not met before the end user will be prompted again to determine the state of this condition.</p> <p>If a non-zero value is entered, the end user will not be prompted again for at least that number of seconds.</p> <p>If a value of zero is entered, then the end user could be prompted again as soon as the next execution of the Check-In command.</p>
<b>Maximum number of defers</b>	<p>This controls the maximum number of times the condition is not met.</p> <p>Once the condition has not been met this number of times, it will either be met or failed, depending on the setting of the next feature.</p> <p>If a value of zero is entered, then the condition will be met or failed on the first time.</p>
<b>Action after maximum defers</b>	<p>Select the action to trigger after the maximum number of defers is met.</p> <ul style="list-style-type: none"> <li>◦ <b>Fail Condition.</b></li> <li>◦ <b>Display Cancel Button.</b></li> <li>◦ <b>Pass Condition.</b></li> </ul>

- **Power** – This condition type tests how a device is being powered, including whether the device is plugged in or has a suitably high battery level. Use a **Power** condition type to prompt users to place the device into the cradle or to insert a charged replacement battery.

Settings	Description
<b>Message to be displayed</b>	
<b>First line prompt</b>	Enter a header for the prompt.
<b>Second line prompt</b>	Enter the body of the prompt.
<b>Third line prompt</b>	<p>If you enable a countdown, you can enter a countdown phrase into the <b>Third line prompt</b> field.</p> <p>For example, "You have %count% seconds to comply" where %count% will be the countdown clock.</p>
<b>Condition</b>	
<b>Required power level</b>	<p>Enter the required power level for the condition to test true.</p> <ul style="list-style-type: none"> <li>◦ <b>A/C.</b></li> <li>◦ <b>A/C or Full Battery.</b></li> </ul>

Settings	Description
<b>Delay</b>	
<b>Delay (seconds)</b>	<p>Use this to delay for a specified time or until the end user makes a selection.</p> <p>If you enter a non-zero value, the prompt will wait for that value worth of seconds. If the end user does not make a selection in the time allowed, the condition is automatically considered not met.</p> <p>If a value of zero is entered, then the prompt will display indefinitely until the end user makes a selection.</p>
<b>Enable countdown?</b>	This allows delay time to be “counted” down on the device so the end user knows how much time is remaining for the user to make a selection.

- **Recurring Schedule** – Rather than set an event action to begin based on a specific device condition, you can simply assign it to a recurring schedule.

Settings	Description
<b>Scheduled Interval</b>	Select from <b>Hourly</b> , <b>Daily</b> , and <b>Weekly</b> as the basis for the recurrence.
<b>Events Interval</b>	<p>Enter the length of time you want each recurring schedule to be.</p> <p>For example, if you want an event action to start every other day, then select Daily and enter 2 in this field. Alternatively, you could select Weekly and select the two specific days you want the event action to start. To start an event action twice a day, then select Hourly and enter 12 in this field.</p>
<b>Days of event occurrence (Weekly only)</b>	
<b>Sunday through Saturday</b>	Select <b>Yes</b> for each day you would like the event action to start.
<b>Start and End Time (Daily and Weekly only)</b>	
<b>Start Time</b>	Enter the time of day the event action starts.
<b>End Time</b>	<p>Many things can delay an event action from starting such as the device being offline or a previous event still in progress. When the device is ready, you can allow the event action to always start or set an end time at which point the device waits until the next start time.</p> <p>Enter the time of day the event action will stop making attempts to start until the next scheduled start time.</p>
<b>Disable end time</b>	Select <b>Yes</b> to disable end time. This causes the device to make continued attempts to start the event action until it succeeds.

- **Schedule** – This condition type tests the device date and time against a specific date/time entered. When the date/time is met, the condition passes and allows the download.

Settings	Description
<b>Date</b>	Select the specific date from the drop-down calendar.
<b>Time</b>	Select the specific hour and minute from the drop-down menu.

- **SD Encryption** – This condition type tests whether the device's SD card is encrypted or not encrypted. This can be relevant if you need to wait for the SD card to be encrypted before downloading a file.

Settings	Description
<b>SD card is</b>	Select <b>Encrypted</b> or <b>Unencrypted</b> to limit the product based on the state of the SD card encryption.

- **Time** – This condition type tests the local date and time on a device.

Settings	Description
<b>First Time Slot</b>	
<b>Select the month, day and year</b> Start Finish	Select <b>Month</b> , <b>Day</b> , and <b>Year</b> for both Start and Finish.
<b>Select hour and minute</b> Start Finish	Select <b>Hour</b> and <b>Minute</b> for Start and Finish.
<b>Second Time Slot</b>	
<b>Enable time check 2?</b>	Select <b>Yes</b> to display a second set of options identical to the First Time Slot.
<b>Third Time Slot</b>	
<b>Enable time check 3?</b>	Select <b>Yes</b> to display a third set of options identical to the First Time Slot.

6. Select **Finish**.

## Delete a Condition

Remove unwanted conditions from your product. Workspace ONE™ UEM checks any attempt to delete a condition against the list of active products.

To delete a condition, it must be detached from all products as detailed below.

1. Select the **Product** listed in the Warning prompt.
2. Select **Edit**.
3. Remove the condition from the product.
4. Select **Save**.
5. Repeat the steps above for all products containing the condition.
6. Once the condition detaches from all products, you can delete the condition.

If a condition is part of an active product, a warning prompt appears listing any product that uses the condition.

## Event Actions

Event actions allow you to take action on a device when predetermined conditions are met. The Event Actions wizard guides you through creating the conditions and actions together.

In cases where you want to perform a device action only when certain conditions are met, event actions allow you to control the timing of these actions. For example, your devices might need new files download to them but only until the device is not in use. A device event can wait until the device is connected to its charger before installing files. In another example, you can set a connectivity condition to wait for the device to connect to Wi-Fi before sending in a device check-in.

Event actions act as a device-based "if-this-then-that" configuration which controls the recurrence of actions on a device. A product only processes once on a device. Event actions, however, process any time the conditions are met.

Push event actions to devices as a component of a product.

### Create an Event Action

You can create event actions that run on a device when certain conditions are met.

1. Navigate to **Devices > Staging & Provisioning > Components > Event Actions** and select the **Add Event Action** button. The **Add Event Action** wizard displays.
2. Select your device platform. The available conditions and actions for the platform display. Select **Next**.
3. Complete the **Details** settings and select **Next** when complete.

Settings	Descriptions
<b>Name</b>	Enter a name for the event action. The name cannot be longer than 255 characters.
<b>Description</b>	Enter a short description for the event action.
<b>Managed By</b>	Select the organization group that can edit the event action.

4. Select a **Condition** to trigger the device action.  
You can select a previously created condition or create a new one. To create a condition, select **Create Condition** from the drop-down menu. Select **Next** when complete. For more information, see [Create a Condition on page 40](#).
  - **Battery Threshold** – select to take actions for specified battery limits.
  - **Recurring Schedule** – Schedule your actions to run on a recurring basis.
5. Complete the required option **Minimum Time Between Actions (hours)**. This option limits the number of times the action is run when triggered by the prescribed event.  
This option is not available when **Recurring Schedule** is included in the selected conditions.
6. Select an **Action** to perform. The actions available depend on the device platform.

Action	Description
<b>Apply Custom Settings</b>	<p>Apply custom, OEM-specific device settings based on the selected XML file, which must be delivered to the device through a separate File/Action.</p> <p>If the file entered in the <b>File Path</b> text box is not found, then the Event Action does not run. However, the Event Action remains active, making attempts to run the custom setting XML file each time the condition is met.</p> <p>Supported Devices:</p> <ul style="list-style-type: none"> <li>• Android MSI devices with the Android Agent v7.1+ <ul style="list-style-type: none"> <li>◦ Upload the ZIP file created by MSI.</li> </ul> </li> <li>• Android Zebra devices with the Android Agent v7.2+ <ul style="list-style-type: none"> <li>◦ Upload the XML configuration file created by the Zebra Stage Now program.</li> </ul> </li> </ul>
<b>Download Files</b>	<p>You can download a file from the selected File Server source path onto the selected Destination folder of your device.</p> <p>For details, see <a href="#">Configure Download and Upload Actions for Event Action on page 48</a>.</p>
<b>Reboot</b>	Restart the device.
<b>Run Intent</b>	Run command lines and arguments on the device. See <a href="#">Example RunIntent on page 59</a> for more information.
<b>Upload Files</b>	<p>You can upload a file from a source file path on your device to the selected File Server destination folder.</p> <p>For details, see <a href="#">Configure Download and Upload Actions for Event Action on page 48</a>.</p>

7. Select **Update** to add the action to the event action. You can add additional actions to the event action. Select **Next**.

8. Review the **Summary** and select **Save**.

To push event actions to devices, add them as a component to a product. For more information, see [Create a Product on page 34](#).

## Configure Download and Upload Actions for Event Action

You must select a previously configured file server when you make Download Files or Upload Files the action of your Event Action. Making such a selection provides a source and destination for these files.

If you have not yet configured a file server for this purpose, see [Add a File Server on page 50](#).

You can only see these options in the **Actions** tab of the **Add Event Action** screen, and only when you select as your action either **Download Files** or **Upload Files**.



1. Complete the following options to configure the Download Files or Upload Files action.

Setting	Description
<b>Select Action</b>	This option is pre-populated with either Download Files or Upload Files.
<b>File Server</b>	Select from the list of <b>Existing</b> file servers you have configured previously. If no file servers are configured, select the <b>Create New</b> button followed by <b>New File Server</b> to add a file server and consult <a href="#">Add a File Server on page 50</a> .
<b>Source</b>	For Download Files, the source is a file on the file server. Enter the path on the file server where the file can be found.  For Upload Files, the source is a file on your device. Enter the directory or file path on your device where the file can be found.
<b>Destination</b>	For Download Files, the destination is your device. Enter the directory or file path on your device where the file is going.  For Upload Files, the destination is the file server. Enter the path on the file server where the file is going.
<b>Folder Naming</b>	This option is available only when Upload Files is the <b>Select Action</b> .  When multiple Upload Files actions use the same destination folder, there is a risk that identically named files might overwrite each other.  To reduce this risk, files can be uploaded into dynamically generated child folders for each assigned device. You can use a lookup value to give identically named files a unique folder name. When you review the uploaded files on the file server, the folder name identifies the user or device from which it came.  Select one or more of the following lookup values to make the destination folder name unique. <ul style="list-style-type: none"> <li>• DeviceAssetNumber</li> <li>• DeviceUid</li> <li>• DeviceFriendlyName</li> <li>• User name</li> <li>• UserEmailAddress</li> </ul> For more information, see Lookup Values. You can also perform a search on docs.vmware.com.

2. Select the **Update** button to save your configuration.

## File Servers

You can configure a file server as a staging and provisioning component. This file server component is in support of the Upload File and Download File actions in Event Actions. You can coordinate this file server with an organization group and content gateway in Workspace ONE™ UEM console.

## Add a File Server

File servers are used as the source or destination of a download files or upload files event action.

1. Navigate to **Devices > Staging & Provisioning > Components > File Servers** and then select **Add File Server**.
2. Complete all applicable settings in the tabs that are displayed.

Setting	Description
<b>Name</b>	Enter a name for the file server.
<b>Link</b>	Enter the path of the source or destination of files. For example, \\home\NetworkFileShare
<b>Organization Group</b>	Enter the organization group you want to coordinate with for the File Server.
<b>Content Gateway</b>	Select the content gateway that is reachable from this resource. The selection of a content gateway is required.
<b>Authentication</b>	
<b>User name</b>	Enter the user name that is recognized by the file server.
<b>Password</b>	Enter the password that accompanies the user name.
<b>Test Connection Status</b>	Select the <b>Test Connection</b> button to test whether the file server can be connected to with the user name and password entered.

## Files/Actions for Products

You can install, configure, and upgrade devices by assigning files/actions to a product. The files/actions component also contains ways to manage the file system of a device.

A file/action is the combination of the files you want on a device and the actions you want performed on the device with the file. You cannot assign files/actions directly to a device. Instead, you assign a file/action to a product. The product is then assigned to the device using Smart Group assignment.

View the files/actions in the Files/Actions List View.

### Create a Files/Actions Component

Create Files/Actions to install and configure files and upgrades onto your devices using product provisioning.

To add files and actions to a Files/Actions component, take the following steps.

1. Navigate to **Devices > Staging & Provisioning > Components > Files/Actions** and select **Add Files/Actions**.
2. Select the device Platform for which you want to make the files/actions.

- Complete the **General** text boxes.

Settings	Descriptions
<b>Name</b>	Enter a name for the files/actions. The name cannot be longer than 255 characters.
<b>Description</b>	Enter a short description for the files/actions.
<b>Version</b>	The UEM console pre-populates this setting.
<b>Platform</b>	Read-only setting displays the selected platform.
<b>Managed By</b>	Select the organization group that can edit the files/actions.

- Select the **Files** tab.
- Select **Add Files**. The **Add Files** window displays.
- Select **Choose Files** to browse for a file or multiple files to upload.
- Select **Save** to upload the files. Once the files upload, the file grouping screen opens. File groups allow you to assign different download paths and settings to different groups of files you have uploaded to a single file/action.
- Select uploaded files and select **Add** to move the files into a new file group.
- Define the **Download Path** the device uses to store the file group in a specific device folder. If the download path entered does not exist, the folder structure is created as part of installation.
- Select **Save**. You can repeat the previous steps for as many files as you want.
- Select the **Manifest** tab. Actions are not required if you have at least one file uploaded.
- Add actions to the **Install Manifest** or the **Uninstall Manifest** if needed.

The uninstall manifest only runs when the Uninstall action is added to the product. Also, if nothing is added to the Uninstall Manifest, uninstalling the file/action results in no effect.

Settings	Descriptions
<b>AirWatch Agent Upgrade</b>	Install the new AirWatch Agent to the device. Before using this file/action, see <a href="#">Upload the AirWatch Agent APF File on page 57</a> for more information.

Settings	Descriptions
<b>Apply Custom Settings</b>	<p>Apply custom, OEM-specific device settings based on the selected XML file. You must upload the custom XML or ZIP file as part of the file/action.</p> <p>Supported Devices:</p> <ul style="list-style-type: none"> <li>• Android Motorola Solutions devices with the Android Agent v7.1+ <ul style="list-style-type: none"> <li>◦ Upload the ZIP file created by MSI.</li> </ul> </li> <li>• Android Zebra devices with the Android Agent v7.2+ <ul style="list-style-type: none"> <li>◦ Create your XML configuration file using Zebra Stage Now.</li> <li>◦ Upload the XML configuration file and select it from the drop-down menu.</li> <li>◦ After pushing the product containing an Apply Custom Setting file/action, the status information reports in the Job Log. If an error occurs, the failed response XML is reported in the Job Log. For more information, see <a href="#">Product Job Statuses on page 75</a>.</li> </ul> </li> </ul>
<b>Copy Files</b>	Copy files from one location to another on the device.
<b>Create Folder</b>	Create a new folder on the device.
<b>Delete Files</b>	Delete folders from the device.
<b>Install Unmanaged Application</b>	<p>Install an unmanaged .APK file. Workspace ONE UEM does not add the app to the managed app list. Enterprise wipes or unenrollment do not remove the app from the device. You must use the Uninstall Unmanaged Application file/action. Consider adding Uninstall Unmanaged Application to the uninstall manifest of any product including the Install Unmanaged Application file/action.</p>
<b>Move Files</b>	Move files from one location to another on the device.
<b>OS Upgrade</b>	Install a new OS upgrade and the relevant AirWatch Agent. For more information on this option, see <a href="#">Create an Android OS Upgrade File/Action on page 55</a> .
<b>Reboot</b>	Restart the device.
<b>Remove Folder</b>	Remove a folder from the device.
<b>Rename File</b>	Rename a file on the device.
<b>Rename Folder</b>	Rename a folder located in the device.
<b>Run Intent</b>	Run command lines and arguments on the device. See <a href="#">Example RunIntent on page 59</a> for more information.
<b>Uninstall Unmanaged Application</b>	Uninstall an unmanaged application. Enter the package ID of the app.

- **Path Variables** – For all file management-related actions listed above (copy files, create folder, delete files, move files, remove folder, rename file, and rename folder), you have the option of inserting a path variable for both source and target, as applicable. The use of these variables in your Files/Actions path means you do not need to account for the randomly generated OEM-specific path definitions in the creation of your Files/Actions.
- **\$internal\$** – Use this variable at the beginning of your path to indicate your source/target path to be read from/written to the internal storage space. Supports read and write actions.

For example: `/$internal$/agreement/license.txt` addresses the file `license.txt` in the `agreement` folder on the device's internal storage space.

**Note:** `$internal$` does not work with all Files/Actions.

- **\$external\$** – Use this variable at the beginning of your path to indicate your source path to be from the external memory card storage, which the device must feature.

External storage supports read-only access so any usage must involve a memory card that has been properly formatted and furnished with the correct files in the correct locations.

For example: `/$external$/sdcard/license.txt` reads the file `license.txt` from the `sdcard` folder found on the device's external memory card storage.

13. When finished adding actions to the **Manifest**, select **Save**.

## Manage Files/Actions

Manage your created files/actions to keep products and devices up-to-date.

### Edit Files/Actions

When you edit any existing files/actions, the version number increases. After saving the edits, Workspace ONE™ UEM runs a check against all active products to find any that contain the newly edited files/actions.

If any active products contain the files/actions, a warning prompt displays listing all active products affected by the edited files/actions. You can then choose to **Activate** or **Deactivate** a product using the files/actions.

### Delete Files/Actions

Workspace ONE UEM checks any attempt to delete files/actions against the list of active products.

To delete files/actions, it must be detached from all products.

1. Select the **Files/Actions** listed in the Warning prompt.
2. Select **Edit**.
3. Remove the files/actions from the product.
4. Select **Save**.
5. Repeat for all products containing the files/actions.
6. Once the files/actions detaches from all products, you can delete the files/actions.

If the files/actions is part of an active product, a warning prompt displays listing any product that uses the files/actions.

## Android OS Upgrade File/Action

You can upgrade your Android devices remotely to a new version of the OS using product provisioning. Support includes Zebra devices using the Zebra MX Service and any OEM supporting the Platform OEM Service v3.0 or later. This process allows you to keep your entire device fleet up-to-date without needing to have the devices shipped back to you.

For more information about the Platform OEM Service, see the **VMware AirWatch Android Platform Guide** topic titled Android OEM Services.

**Note:** Before updating your Motorola device to a new Zebra OS, you must have the AirWatch Agent for Android v5.1.4+ installed and the 1.9 MX service. For information on upgrading the OS for Honeywell devices, see the KB article [:https://support.air-watch.com/articles/115001664568](https://support.air-watch.com/articles/115001664568).

### Device Side OS Update Process

After an Android device receives an Android OS Upgrade file/action, the device processes the command in the following order.

1. Device receives the product which you can verify in **Agent > Products**.
2. Download all the files including the OS update zip which you can verify in the Product logs found in **Agent > Product > Product Name**.
3. Once the downloads complete on a Zebra device, the AirWatch Agent backs up its data and any installed managed applications to the device enterprise folder which is persistent.
4. The Agent then reboots the device into recovery mode to install the update.
5. Device then applies the OS update.
6. Once complete, the device reboots.
7. After reboot, the Agent validates that the OS update is successful before reporting that the job completed successfully.

### Import Packages in Files/Actions

AirWatch allows you to import MSP (Motorola Services Platform) packages. The packages import and unpack into proper files/actions for use in products.

To import an MSP package, take the following steps.

1. Navigate to **Devices > Staging & Provisioning > Components > Files/Actions** and select **Add**.
2. Select the Platform you want to create a staging configuration for.
3. Select **Import Package**.
4. Select **Upload** to add an APF file.  
Once the file is uploaded, the required text boxes are auto-completed.
5. Select **Save**.

## Create an Android OS Upgrade File/Action

Upgrade all your Android Rugged devices remotely with the Android OS Upgrade File/Action. Add the file/action to a product to push an OS Upgrade to your devices without needing to update them manually.

1. Navigate to **Devices > Staging & Provisioning > Components > Files/Actions** and select the **Add Files/Actions** button.
2. Select **Android** as your device platform.
3. Complete the General text boxes.
  - Enter a **Name**.
  - Enter a **Description**.
  - View the **Version** automated by Workspace ONE™ UEM.
  - Enter who the files/actions are **Managed By**.
4. Select the **Files** tab.
5. Select the **Add Files** button.
6. For Zebra devices, upload the following files and specify the path as either `/data/tmp/` to store the file on the data partition, or as a known internal path to store it on the internal storage. For other devices, specify a known internal storage path on the device, such as `/sdcard/`.
  - OS Update ZIP file – This file can be a major or minor OS upgrade file. The file can also be an enterprise reset package.
  - [optional] AirWatch Agent update package (APF) – This optional file can be specified to update the AirWatch Agent before initiating the actual OS update. Workspace ONE UEM can provide this APK.
7. Select the **Manifest** tab and select **Add Action** under the **Install Manifest**.
8. Add OS Upgrade command to the manifest and select the corresponding OS upgrade file that was uploaded earlier. Your Manifest tab looks similar to the following.

**Add Files/Actions**

General Files **Manifest**

Install Manifest

+ ADD ACTION

Up	Down	Step Number	Action Type	Description
▲	▼	1	OS Upgrade	OS File = EnterpriseReset JB.zip

Items 1-1 of 1

Uninstall Manifest

+ ADD ACTION

Up	Down	Step Number	Action Type	Description	Actions
No Records Found					

IMPORT PACKAGE SAVE CANCEL

9. Select **Save**.

After creating an OS Upgrade file/action, create a product to push the upgrade to your devices. See [Create a Product on page 34](#) for more information.

**Note:** Before installing an OS Update, the device checks the battery level. If the level is below a threshold, the product fails. This failure displays in the log.

### Create a Honeywell Android OS Upgrade File/Action

Upgrade all your Honeywell Android Rugged devices remotely through product provisioning. Add the file/action to a product to push the upgrade to your devices without needing to update them manually.

Honeywell Android Rugged devices do not use the OS Upgrade file/action to upgrade. The Honeywell OS uses an autoinstall feature to upgrade the device.

### Prerequisites

Download the OS Update.zip from Honeywell before beginning this process.

The VMware Workspace ONE™ UEM Service for Honeywell must be installed on the device.

### Procedure

1. Navigate to **Devices > Staging & Provisioning > Components > Files/Actions** and select **Add**. Create a file/action component. See [Create a Files/Actions Component on page 50](#) for more information.
2. Upload the OS Update.zip to the file/action. Set the download location to **/storage/IPSM/honeywell/autoinstall/**.
3. Add a Reboot action in the file/action install manifest.
4. Create a product including the file/action you created and push the product to your Honeywell devices.

When the device processes the product job, the file is installed into the download location. When the device reboots, the OS autoinstalls the ZIP file and upgrades the device.



## AirWatch Agent Upgrade File/Action

When you upgrade your devices, you can seed the AirWatch Agent in the Workspace ONE™ UEM console for use in products. The file/action AirWatch Agent Upgrade then grabs the list of seeded APF files when creating a manifest action for products.

Use this option to enroll devices with older agent versions installed. You can enroll the devices then upgrade the device to the new agent version you want to use.

When using this upgrade option, be alert for failed upgrades. A failed upgrade can cause the product to push repeatedly as the console recognizes the older agent version. This can cause additional strain on the network and much greater battery consumption on the device. If the upgrade fails, deactivate the product and look over the configuration to ensure that the settings are correct.

**Note:** The Agent Packages screen is only accessible in Customer type organization groups.

### Upload the AirWatch Agent APF File

The Agent Package can be uploaded only in specific organization group types, for example, in organization groups of type 'Customer'. Upload the Agent Package at the highest organization group level. You can find the file specific to your OEM located in Workspace ONE™ UEM Resources.

To upload an APF file, follow these steps.

1. Navigate to **Devices > Staging & Provisioning > Components > Agent Packages** and select **Add AirWatch Agent**. Make sure that you are using the top-level organization group.
2. Select the platform for which you are adding the agent package. The Add AirWatch Agent screen displays.
3. Select the **Upload** button next to the **Application File** setting. Next, select **Choose File** to browse for the APF file of the agent version you want to upload.
4. Select the APF file and select **Open** to select the file.
5. Select **Save** to close the upload dialog.
6. With the uploading of the APF file, the settings are automatically populated with data. You can make desired edits to **File Name**, **Package Name**, and **Version** for the agent.
7. Select **Save** to upload the APF file to the UEM console.

### RunIntent Action

The runIntent action starts an Android intent that facilitates late runtime binding between the code in different applications. Use these intents to accomplish actions on your Android devices.

The most significant use of runIntent is the launching of activities, where it can be thought of as the glue between activities. It is a passive data structure holding an abstract description of an action to be performed. The runIntent action supports both explicit and implicit intents.

Depending on the arguments used, the AirWatch Agent uses either of the following to start the specified intent.

- `android.content.Context.startActivity(Intent intent)`
- `android.content.Context.sendBroadcast(Intent intent)` to run the specified intent.

## RunIntent Syntax

The argument syntax changes depending on whether explicit or implicit mode is specified.

```
mode=explicit, broadcast=[true|false] , action=< action>, package=<package>,
class=<class> [, data=<data>] [, extraString=<stringname>=<string value>[,...]] [,
extraInt=<int name>=<int value>[,...]]
```

```
mode=implicit, broadcast=[true|false] , action=<action> [,category=<category>] [,
uri=<uri>] [, data=<data>] [, extraString=<string name>=<string value>[,...]] [,
extraInt=<int name>=<int value>[,...]]
```

## Arguments

Argument	Explanation
<b>mode=</b> [explicit   implicit]	Specifies whether the intent is explicit or implicit.
<b>broadcast=</b> [true   false]	Specifies whether the intent to be launched using startActivity() or sendBroadcast().
<b>action=&lt;action&gt;</b>	Specifies the Android action string for the intent. An example of an Android action string is android.intent.action.MAIN.
<b>package</b> =<package >	Specifies the Android package name of the java class to be explicitly run. Android package names are generally of the format com.mycompany.myapplication.
<b>class=&lt;class&gt;</b>	Specifies the java class in the specified package that is to be explicitly launched.
<b>uri=&lt;uri&gt;</b>	Specifies the URI that is to be passed with the implicitly launched intent.
<b>category</b> =<category>	Specifies the Android category string that is to be passed with the implicitly launched intent. An example of an Android category string is android.intent.category.DEFAULT
<b>data=&lt;data&gt;</b>	Specifies the value of the Android data parameter that is to be passed with the explicitly or implicitly launched intent.
<b>extraString</b> =<string name>=<string value>	Specifies the name of an extra string parameter that is to be passed with the explicitly or implicitly launched intent. string value specifies the value of the extra string. The extraString argument can be used multiple times to specify additional extra string name/values.
<b>extraInt=&lt;int name&gt;=&lt;int value&gt;</b>	Specifies the name of an extra int parameter that is to be passed with the explicitly or implicitly launched intent. int value specifies the value of the extra int. The extraInt argument can be used multiple times to specify additional extra int name/values.

The following table indicates which arguments are required, optional, or not applicable for the explicit and implicit modes.

mode	explicit	implicit
broadcast	required	required
action	required	required
package	required	n/a
class	required	n/a
uri	n/a	optional
category	n/a	optional
data	optional	optional
extraString	optional	optional
extraInt	optional	optional

Example RunIntent

```
mode=explicit,broadcast=false,action=android.intent.action.MAIN,
package=com.examples.myapplication,class=com.examples.myapplication.MainActivity
```

## APK File Installation

You can use a runIntent action on an APK file on the device's local storage which installs an application on the device.

RunIntent Syntax for APK File Installation

```
mode=implicit,broadcast=false,action=com.airwatch.android.
provisioning.INSTALL_APKS_FROM_FOLDER,package=com.airwatch.
androidagent,extraString=path=/storage/emulated/Download
```

- You must customize the path in the highlighted portion to account for your specific file and folder structure.
- You can specify an individual APK file in this path on the runIntent which installs an app on the device.
- You can also specify a folder in the path of the runIntent, which runs all APK files found in that folder.
- Apps installed on a device using APK files via a runIntent are unmanaged.
- You can also use a path variable in the runIntent to represent the device's internal or external storage.

Path Variable Usage in RunIntent for APK Installation

**\$internal\$** – Use this variable at the beginning of your path to indicate your source/target path to be read from/written to the internal storage space. Supports read and write actions.

For example: `/$internal$/agreement/license.txt` addresses the file `license.txt` in the `agreement` folder on the device's internal storage space.

**Note:** \$internal\$ does not work with all Files/Actions.

**\$external\$** – Use this variable at the beginning of your path to indicate your source path to be from the external memory card storage, which the device must feature.

External storage supports read-only access so any usage must involve a memory card that has been properly formatted and furnished with the correct files in the correct locations.

For example: /\$external\$/sdcard/license.txt reads the file license.txt from the sdcard folder found on the device's external memory card storage.

## Create an XML Provisioning File

XML provisioning allows you to download a custom-designed XML file to a device in a provisioning product. After the file is downloaded, it runs an install command to extract the settings from the XML file and install them on the device.

1. Navigate to **Devices > Staging & Provisioning > Components > Files/Actions** and select **Add Files/Actions**.
2. Select your platform.
3. Enter the required settings on the **General** tab, then select the **Files** tab and upload the desired XML file and enter the destination path on the device.
4. Select the **Manifest** tab and **Add** an **Install Action** for the XML file.
5. Select **Save**.
6. Navigate to **Devices > Staging & Provisioning > Products List View**, and select **Add Product**.
7. Select your platform.
8. Enter the **General** information.
9. Select the **Manifest** tab.
10. Select **Install Files/Actions** and select the files and actions just created.
11. **Save** and **Activate** the product.

The product downloads to all assigned devices and the XML file successfully installs.

```
<?xml version="1.0"?>
<attributes>
  <attribute name="attribute 1" value="value 1"/>
  <attribute name="attribute 2" value="value 2"/>
  <attribute name="attribute 3" value="value 3"/>
</attributes>
```

## Product Provisioning Profiles

The product provisioning system allows you to create profiles for your rugged devices. The profiles created for rugged devices are installed or uninstalled as part of a product.

Profiles created under Products are different than those created through Workspace ONE™ UEM. This section lists the differences between profiles created for normal device use and those created for use in product provisioning.

### Profile Creation and General Settings

Profiles for use with product provisioning must be created by navigating to **Devices > Staging & Provisioning > Components > Profiles** and select **Add**.

While creating these product provisioning profiles, the general tab will be different than the normal general tab for profiles.

**Note:** Assignment of profiles happens at the product level and not at the profile level as it is in smartphone profiles.

### Saving Product Provisioning Profiles

After configuring your product provisioning profile, select **Save** instead of **Save & Publish**.

Profiles names cannot be longer than 255 characters.

### Edit Product Provisioning Profiles

Unlike profiles created for typical MDM deployments, profiles for product provisioning have different rules governing editing or deleting.

#### Update Profiles

When you edit an existing profile, the version number increases. After saving the edits, Workspace ONE™ UEM runs a check on all active products to find any that contain the newly edited profile.

If any active products contain the profile, a warning prompt displays listing all active products affected by the edited profile. You can then select to **Activate** or **Deactivate** a product using the profile.

#### Delete Profiles

Workspace ONE UEM checks any attempt to delete a profile against the list of active products.

To delete a profile, you must detach it from all products.

1. Select the **Profile** listed in the Warning prompt.
2. Select **Edit**.
3. Remove the profile from the product.
4. Select **Save**.
5. Repeat the steps above for all products containing the profile.
6. Once the profile detaches from all products, you can delete the profile.

If a profile is part of an active product, a warning prompt displays listing any product that uses the profile.

## Custom Attributes

Custom attributes enable administrators to extract specific values from a managed device and return it to the Workspace ONE UEM console. You can also assign the attribute value to devices for use in product provisioning or device lookup values.

These attributes allow you to take advantage of the rules generator when creating products using Product Provisioning.

**Note:** Custom attributes (and the rules generator) are only configurable and useable at Customer-level organization groups.

### Custom Attributes Database

Custom attributes are stored either as XML files on the device or in the custom attribute database on the Workspace ONE™ UEM console server. When using the database, custom attributes are sent as samples to Workspace ONE UEM periodically for asset tracking of key/value pairs. If a record in the device database is configured with 'Create Attribute' = TRUE, then the AirWatch Agent automatically retrieves the Name and Value sent with the custom attributes sample. The key/value pair displays in the Device Details page for the device in the Custom Attributes tab.

### Create Custom Attributes

Create a custom attribute and values to push to devices. You create the attributes and values associated with them. For more information, see [Create Custom Attributes on page 62](#).

### Importing Custom Attributes

The custom attribute batch import feature allows you to load custom attributes and corresponding values into the system in bulk. In the templates provided, each column corresponds to one custom attribute and each row corresponds to their different parameters. For more information, see [Custom Attributes Importing on page 63](#).

### Platform-Specific Custom Attributes Provisioning

You can push custom attributes to a device using XML provisioning for use with advanced product provisioning functionality. The method for pushing the XML varies based on the device platform.

### Create Custom Attributes

Create a custom attribute and values to push to devices. These attributes and values control how product rules work and function as lookup values for certain devices.

1. Navigate to **Devices > Staging & Provisioning > Custom Attributes > List View**.
2. Select **Add** and then select **Add Attribute**.
3. Under the **Settings** tab, enter an **Attribute Name**.
4. Enter the optional **Description** of what the attribute identifies.
5. Enter the name of the **Application** that gathers the attribute.

6. Select **Collect Value for Rule Generator** to make the values of the attribute available in the drop-down menu of the rule generator.
7. Select **Use in Rule Generator** if you want to use the attribute in the rule generator.
8. Select **Persist** to prevent the removal of the custom attribute from the Workspace ONE™ UEM console unless an Admin or an API call explicitly removes it. Otherwise, the attribute is removed as normal.  
If you delete a custom attribute reported from a device to the UEM console, a persisted custom attribute remains in the UEM console.  
Custom attribute persistence is only available to Android and Windows Rugged devices.
9. Select **Use as Lookup Value** to use the custom attribute as a lookup value anywhere in the UEM console.  
For example, you can use custom attributes as part of a device friendly name to simplify device naming.
10. Select the **Values** tab.
11. Select **Add Value** to add values to the custom attribute and then select **Save**.

## Custom Attributes Importing

The custom attribute batch import feature allows you to load custom attributes and corresponding values into the system in bulk. In the templates provided, each column corresponds to one custom attribute and each row corresponds to their different parameters.

With the templates, you can import custom attributes in different ways and with different information.

**Caution:** The syntax of the first column of each template must be replicated exactly. Failure to use the proper syntax can cause database issues and result in loss of data.

### Template Types

- Custom Attributes Template – Allows you to define a custom attribute and its settings.

	A	B	C	D	E	F	G
1	CustomAttributeName	Description	ApplicationName	UsedInRuleGenerator	CollectValuesForRuleGenerator	Persist	ShowOnDevicesGrid
2	AgentVersion1	Airwatch Agent Description	Services1.exe	1	0	1	0
3	AgentVersion2	Airwatch Agent Description	Services1.exe	1	0	1	0
4	AgentVersion3	Airwatch Agent Description	Services1.exe	1	0	1	0
5	AgentVersion4	Airwatch Agent Description	Services1.exe	1	0	1	0

- Custom Attribute Values Template – Allows you to define the values of predefined custom attributes.

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	SSID Bangalore	SSID Palo Alto	PreSharedKey AdminOffc	Custom Attributes									
2	Enterprise	PLTO_1	ADMIN\$	Values									
3	BNG_Test	PLTO_Guest	ADM1N										
4	AWT		#Dm1N										

- Device Custom Attribute Values – Allows you to define the values of predefined custom attributes for individual devices based on the cross reference (Xref) value. The Xref values determine the individual devices receiving the value for each custom attribute.

	A	B	C	D	E	F	G	H	I
1	XRefType	XRefValue	SSID   Cust1	USERNAME   Cust	PASSWORD   Cust3	SSID   CXXX	Services1.exe   AgentVersion1		
2	1	5263	AW_BNG	DEV1	XXXXXXXXXX	SS	5.3.56.147		
3									
4									
5									

1. DeviceID (Workspace ONE™ UEM assigned DeviceID when the device enrolls)
2. Serial Number
3. UDID
4. MAC Address
5. IMEI Number

Save the file as a .csv before you import it.

## Assign Organization Groups Using Custom Attributes

Configure rules that control how devices are assigned to organization groups following enrollment. You can only create one custom attribute assignment rule for each organization group you run.

1. Ensure that you are currently in a customer type organization group.
2. Navigate to **Groups & Settings > All Settings > Devices & Users > General > Advanced**.
3. Set **Device Assignment Rules** to **Enabled**.
4. Set the **Type** to **Organization Group by Custom Attribute**.
5. Select **Save**.
6. Navigate to **Devices > Staging & Provisioning > Custom Attributes > List View > Add > Add Attribute** and create a custom attribute if you have not already done so. See [Create Custom Attributes on page 62](#) for more information.
7. Navigate to **Devices > Staging & Provisioning > Custom Attributes > Custom Attributes Assignment Rules > Add Rule**.
8. Select the **Organization Group** to which the rule assigns devices.



9. Select **Add Rule** to configure the logic of the rule.

Setting	Description
<b>Attribute/Application</b>	This custom attribute determines device assignment.
<b>Operator</b>	<p>This operator compares the <b>Attribute</b> to the <b>Value</b> to determine if the device qualifies for the product.</p> <p>When using more than one Operator in a rule, you must include a <b>Logical Operator</b> between each <b>Operator</b>.</p> <div style="border: 1px solid #ccc; padding: 10px; margin-top: 10px;"> <p><b>Note:</b> There is a limitation on the less than (&lt;) and greater than (&gt;) operators. This limitation includes "less than or equal to" and "greater than or equal to" variants. These operators are mathematical in nature, which means they are effective at comparing numbers including integers. They cannot be used to compare non-numeric text strings. And while it is common for software versions to be represented with numbers indicating a graded versioning system (for example, 6.14.2), such representations are not numbers because they have more than one decimal point. These representations are actually text strings. Therefore, any assignment rule that compares software version numbers with multiple decimal points using greater than or less than operators (and their variants) can result in an error message.</p> </div>
<b>Value</b>	All values from all applicable devices are listed here for the <b>Attribute</b> selected for the rule.
<b>Add Logical Operator</b>	Select to display a drop-down menu of logical operators such as AND, OR, NOT, and parentheses. Allows for more complex rules.

10. Select **Save** after configuring the logic of the rule.

When a device enrolls with an assigned attribute, the rule assigns the device to the configured organization group.

## Android Custom Attributes

Use XML provisioning to collect custom attributes based on device details. Custom attributes enable you to use advanced product provisioning functionality.

To begin collecting custom attributes, take the following steps.

1. Navigate to **Devices > Staging & Provisioning > Components > Files/Actions > Add** and select **Android** as your platform.
2. Create an XML provisioning file. See [Create an XML Provisioning File on page 60](#). The manifest must include an action to download the XML file to the Zebra device location **/enterprise/usr/attributes**.

For non-Zebra Android devices, the XML file location is

**/sdcard/Android/data/com.airwatch.androidagent/files/attributes/**.



Upon receiving the XML file, the AirWatch Agent for Android creates a custom attributes output file.

During the next check-in with AirWatch, the agent sends the output file to the Workspace ONE™ UEM console.

Once the XML file installs, the custom attributes requested in the file exported to the console. These values display in the console in the Device Details page under custom attributes. The Device Details page enables you to view the name of the attribute and the values returned from each device. These values can be used to create product assignment rules using the Custom Rules system.

Here is an example of the Android XML.

```
<?xml version="1.0"?>
<attributes>
  <attribute name="attribute 1" value="value 1"/>
  <attribute name="attribute 2" value="value 2"/>
  <attribute name="attribute 3" value="value 3"/>
</attributes>
```

Summary	Compliance	Profiles	Apps	Location	User	Custom Attributes
<b>Custom Attributes</b>						
Filter Grid  						
Application	Attribute	Value				
services.exe	HKLM_Ident_Username	guest				
services.exe	HKLM_Ident_OrigName	Pocket_PC				
services.exe	HKLM_Comm_BootCount	3				
services.exe	Software_AirWatch_DeviceIdAlgorithm	3				
services.exe	HKLM_SoftwareAW_SerialNo	13228521401413				
services.exe	AWAggregator_Server	test.airwatchdev.com				
services.exe	HKLM_SoftwareAW_RegisterDeviceRetryCount	20				
Items 1-7 of 7			Page Size: 20			

You can also view existing custom attributes for all devices at a particular organization group and manually create custom attributes directly in the console. Navigate to **Devices > Staging & Provisioning > Custom Attributes > List View** to see these custom attributes listed. Any custom attribute created in this manner automatically associates with a device and its respective custom attribute value that is successfully transmitted to the console.

## Product Sets

Occasionally there are conflicting products provisioned to devices due to similar grouping in smart groups and custom attributes. Product sets allow you to group conflicting products and rank the products based on business needs.

### Product Sets Basics

Product sets contain multiple products that you want to keep mutually exclusive. Product sets are useful for situations where the products contained inside the product set consist of content that should only apply to specific devices within the parameters set by the rules engine using custom attributes.

The products in the product set follow a hierarchy based on ranking according to business needs. From a given product set, a device receives only one product that applies to the device. This product is the highest ranked product where the device meets the smart group and custom attribute rules criteria. Once a device receives a product from a product set, the device will not receive any other products from the set unless the rank of a subsequent product is elevated or a new product is created in the set with a higher rank.

**Important:** A product must exist as either a standalone product or as part of a product set. The product set ensures the integrity of mutual exclusivity of products for a given device.

## Create a Product Set

Create a product set to control the delivery of multiple products so a device receives only the specific product that applies to the device based on your business rules. For more information, see [Create a Product Set on page 67](#).

## Product Set Management

Managing product sets includes more requirements and actions from you than other management functionality in the Workspace ONE™ UEM console. As product sets create complicated relationships between smart groups and products, removing and editing product sets cause multiple reactions for each action taken. For more information, see [Product Sets Management on page 67](#).

## Create a Product Set

Create a product set to control the delivery of multiple products so a device receives only the specific product that applies to the device based on your business rules.

To create a product set, take the following steps.

1. Navigate to **Devices > Staging & Provisioning > Product Sets** and select the **Add Product Set** button.
2. Select the platform for which you want to create the product set.
3. Complete the **General** text boxes.

Settings	Descriptions
<b>Name</b>	Enter a name for the product sets. The name cannot be longer than 255 characters.
<b>Description</b>	Enter a short description for the product sets.
<b>Managed By</b>	Select the organization group that can edit the product sets.

4. Select the **Products** tab.
5. Select **Add** to add products to the product set.
6. Create a product including manifest items, conditions, and deployment settings. See [Create a Product on page 34](#) for more information on creating a product. Ensure that you use the rules engine to create custom attribute-based rules for each product so the policy engine can properly assign the products.
7. Use the **Up** and **Down** arrows to adjust product ranking based on business needs.
8. Set products to **Active** if needed.
9. Select **Save** to create the product set.

## Product Sets Management

Managing product sets includes more requirements and actions from you than other management functionality in the Workspace ONE™ UEM console. As product sets create complicated relationships between smart groups and products,

removing and editing product sets cause multiple reactions for each action taken.

- [Product Sets in Device Details on page 68.](#)
- [Add a Product to a Product Set on page 68.](#)
- [Change the Product Ranking in a Product Set on page 69.](#)
- [Removing Products from Product Sets on page 70.](#)

### Activating and Deactivating Products in a Product Set

When you select to activate or deactivate a product that is part of a product set, a series of reactions take place.

- Deactivating a product in a product set sends a removal command to all devices with that product, and the next highest ranked product is installed.
- Activating a product in a product set might trigger other products to be removed on devices, and the newly activated product to be installed.

### Product Sets in Device Details

Product Sets display on individual device detail pages to show the status of the products' deployments to the device. The products listed that are part of a product set display the product set they pertain to and the deployment status of the products.

The **Products** tab displays all the products in a product set that is assigned to a device. The status of the products in relation to the device is displayed as well. Not all the displayed products from a product set are applicable for the device viewed.

To see the product sets in the Device Details, navigate to **Devices > List View** and select the device you want to view. Then select the **More** option and select **Products**.

The following text boxes display relevant product set information:


- **Product Set** – Displays the product set that contains the product. Select the product set to view the product set details.
- **Status** – Displays the status of the product. For products in a product set, the appropriate product deployed to the device is labeled as **Compliant**. The other products contained in the product set that are eligible for deployment but are not deployed to the device are labeled as **Outranked**. Any product that is not eligible for deployment to the device is labeled as **Not Applicable**.

### Add a Product to a Product Set

Add a product to an existing product set. This action requires following specific rules due to the complicated relation between products and business rules.

A new product in a product set is added with the lowest ranking in the set by default. If the new product should be a higher rank, you must edit the ranking. See [Change the Product Ranking in a Product Set on page 69](#) for more information on what happens when product ranks are adjusted.

To add a product, take the following steps.

1. Navigate to **Devices > Staging & Provisioning > Product Sets**.
2. Find the product set you want to add a product to and select the **Edit** icon ().
3. Select the **Products** tab.


4. Select **Add Product**.
5. Manually adjust the product rank as needed according to your business needs.
6. Select **Save** to add the product to the product set.

Any modifications made during the edit of a product set do not take effect until you save the product set. Once saved, the product set enters the policy engine for evaluation.

### Change the Product Ranking in a Product Set

Product set ranking controls which product of a product set is sent to a device. Since the ranking is the key feature of product sets, changes in ranking cause a series of reactions in the product set.

To change product ranking, take the following steps.

1. Navigate to **Devices > Staging & Provisioning > Product Sets**.
2. Find the product set you want to add a product to and select the **Edit** icon ()
3. Select the **Products** tab.
4. Manually adjust the product rank as needed according to your business needs.
5. Select **Save** to apply the rank changes.

Listed below are examples of rank changes and what happens to the product, product set, and devices as a result.

Reason for Edit	Effect of Edit
<b>Adding a new product.</b>	The new product is set at the lowest rank. You must manually change the rank of the new product as needed.
<b>Changing rank of existing products</b>	<p>Increasing the rank (selecting <b>Up</b> arrow) of a product decreases the rank of all subsequent products by one.</p> <p>Decreasing the rank (selecting <b>Down</b> arrow) of a product increases the rank of previously lower-ranked products.</p> <p>After you complete the rank changes and save the product, the product set enters the policy engine for evaluation. The engine assesses the custom attribute for each device against the new device rankings.</p> <p>If you reorder the Products priority within a Product Set, then the Products are reassigned based on the new priority order. As a result, the Workspace ONE™ UEM console sends removal commands for all devices affected by the reorder and assign Products based on the new order.</p> <p>After editing product ranking, only the products affected by the new ranking receive removal and install commands. Products outside the change in ranking are not affected.</p>


<b>Removing a Product</b>	<p>Removing a product increases the rank of all products previously ranked below the deleted product by one. If multiple products were removed, the ranking increases by one for each product removed.</p> <p>All products that preceded the deleted product's rank remain unchanged.</p> <p>Any products that had the removed product installed receives a new product based on the new rankings.</p>
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### Removing Products from Product Sets

Remove a product from an existing product set. This action requires following specific rules due to the complicated relation between products and business rules.

Removing a product from a product set raises the rank of all products previously ranked below the removed product by one. If multiple products are removed, the remaining products are adjusted by one rank for each product removed. See [Change the Product Ranking in a Product Set on page 69](#) for more information on what happens when product ranks are adjusted.

To remove a product, take the following steps.

1. Navigate to **Devices > Staging & Provisioning > Product Sets**.
2. Find the product set you want to add a product to and select the **Edit** icon ().
3. Select the **Products** tab.
4. Select the check box for each product you want to remove from the product set.
5. Select the **Delete** button to remove the products.
6. Manually adjust the product rank as needed according to your business needs.
7. Select **Save** to add the product to the product set.

Any modifications made during the edit of a product set do not take effect until you save the product set. Once saved, the product set enters the policy engine for evaluation.

# Chapter 5:

## Products Dashboard

View and manage products from the Products Dashboard. Navigate to **Devices > Staging & Provisioning > Products Dashboard**.

The dashboard provides an easy method of viewing the status of your products and the devices they provision. The charts of information allow you to examine specific products or devices so you can remain informed about your device fleet.

### Recent Product Status

This chart displays the 10 most recently created products and the status for each product. You can select any section of the bar graph to view the devices to which that product status applies.

- **Compliant** – The product installed on the device and the inventory data of the product reported by the device matches the requirements of the product.
- **In Progress** – The product has been sent to the device and is pending a compliance check based on inventory.
- **Must Push** – The product deployment type is set to elective. The admin on the console side must initiate product installation.
- **Dependent** – The product depends on another product installation before installing onto devices.
- **Failed** – The product reached maximum attempts to install on the device and is no longer attempting to install.

### Filters

You can filter the Recent Product Status chart to refer to specific device platforms that support product provisioning. To filter your results, select the **Menu** icon (☰) in the top right corner. Select the platforms you want to filter by.

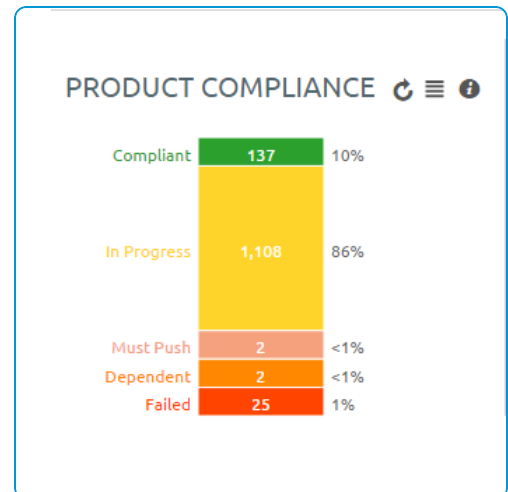
## Product Compliance

The Product Compliance chart shows the total percentage of each compliance status. The number displayed in each status is the total number of product statuses reported from each device.

### Filters

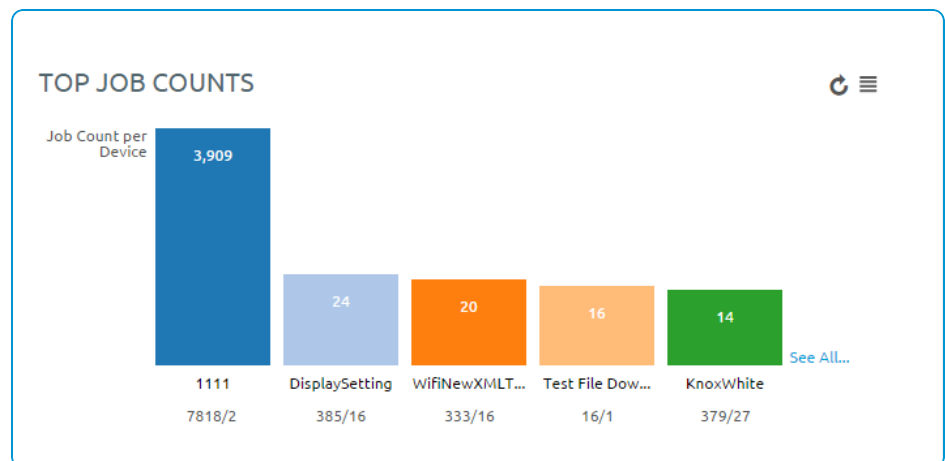
You can filter the Product Compliance chart to display specific device platforms that support product provisioning and the total percentage of each compliance status for a specific products.

To filter your results, select the **Menu** icon (☰) in the top right corner. Select the platforms you want to filter by or enter the products you want to filter by.



## Top Job Compliance

This chart displays a ratio of total job count to the number of devices the product is provisioned to. This ratio gives you information on what products are having issues running. For example, if the number shown is a 3, then you know that an average of 3 jobs per device happens for this product. If you select the bar for each product, the View Devices screen displays with all devices currently assigned the product. You can then determine which jobs are failing and the reason for those failures.



### Filters

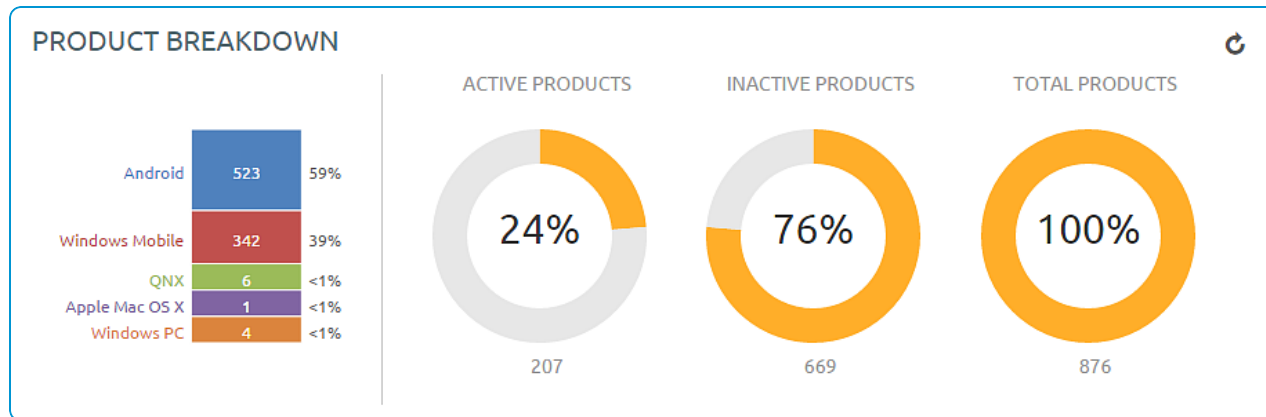
You can filter the Total Job Compliance chart to refer to specific device platforms that support product provisioning. To filter your results, select the menu icon (☰) in the top right corner. Select the platforms you want to filter by.

## Product Breakdown

This section shows you the breakdown of your products. The first chart shows the breakdown of products by platform. Selecting a platform displays the Products List View filtered by that product. This arrangement allows you to see the products available for each platform quickly.



The second chart displays the percentage of your products that are active vs. inactive and a total number of products. Selecting a chart displays the Products List View page filtered by the status of the product.



## Products List View

The Product List view allows you to view, edit, copy, and delete products and view the devices a product is provisioning. Navigate to **Devices > Staging & Provisioning > Product List View**. This is the Products List View. Listed here are all the available products for the current organization group. The products can be sorted using the columns.

- **Platform** sorts by the device platform.
- **Managed By** sorts by the organization group the product is assigned to.
- **A/D** sorts by if the product uses activation/deactivation dates or manual.
- **Compliant, In Progress, Failed, and Total Assigned** sort by the status of the product on devices.

## Actions

By selecting the **Edit** icon, you can edit a product. You can only edit products after they are deactivated. **Edit** displays the Product Wizard allowing you to change any part of a product.

You can attempt to fix non-compliant products and push the product to the device again by selecting the **Reprocess** button.

The **Force Reprocess** action resends Products to all assigned devices regardless of compliance status. The devices fully download and install every component of the Product manifest, even if it exists on the device already. You can perform this action on multiple products simultaneously.

Select the **Relay Server Status** button (located under the **More** button) to see the status of the relay server associated with the product. Only active products have the **Relay Server Status** button


You can also view history from the View Devices page to see the past and future products pushed to the device based on Product sync.

## View Product

Select a product to view the details and settings of the product. The View Product screen displays the general settings, manifest items, conditions, deployment settings, and product dependencies for the product.

Select the **Edit** button to change any of the product settings.

## View Devices

From the Products List View, select the **View Devices** icon () to view all devices the product provisions. A quick summary of information on each device allows you to see which devices are at specific statuses.

Select a device **Friendly Name** to open the Device Details Page for that device.

The **Log** listing shows the actions taken by the Workspace ONE™ UEM console to keep the product and device in sync.

## Inherited Products

The Product List View displays all inherited products a child organization group receives from the parent organization groups. As products are provisioned based on smart groups and not organization groups, your devices can receive products from a parent organization group.

## Products in the Device Details View

You can use the Device Details View to see the products, files/actions, apps, and profiles pushed to a device.

### Products

To view the products on a device, navigate to **Devices > List View > Select a device > More > Products**. This displays the products available on a specific device.

Any product that fails to push to devices can be reprocessed by selecting the **Reprocess** button next to the failed product.

### Product Sets

Product Sets display on individual device detail pages to show the status of the products' deployments to the device. The products listed that are part of a product set display the product set they pertain to and the deployment status of the products.

The following text boxes display relevant product set information.

- **Product Set** – Displays the product set that contains the product. Select the product set to view the product set details.
- **Status** – Displays the status of the product. For products in a product set, the appropriate product deployed to the device is labeled as **Compliant**. The other products contained in the product set that are eligible for deployment but are not deployed to the device are labeled as **Outranked**. Any product that is not eligible for deployment to the device is labeled as **Not Applicable**.

### Files/Actions

Navigate to **Devices > List View > Select a device > More > Files/Actions** to access the files/actions on the device.

### Applications

Navigate to **Devices > Details View > Apps** to access the Applications on the device.

## Profiles

Navigate to **Devices > Details View > Additional Options > Profiles** to access the Profiles on the device.

## Product Job Statuses

Product provisioning works by handling each item in a product as a different job. As a product is pushed to a device, the Workspace ONE™ UEM console updates the status of each job to display any errors or issues that are in process.

Each job follows a workflow and the statuses reflect the position in the process.

Job Status	Description
Queued	The job is created but not yet started.
Delivered	Job initially delivered to device database.
Paused	Job was previously started but a failure occurred. Jobs resume before other jobs are processed.
Download Pending	The download remains in a pending state until download conditions are met.
Downloaded	The job downloaded to the device.
Install pending	The install is pending until install conditions are met.
Installed	The job installed on the device.
Deferred	Job download conditions not yet met.
Waiting	Job is processing on the device but the status of the job is not confirmed.
Completed/ Failed	Job processing complete. Complete means that the process was a success. Failed means that the process failed.
Canceled	Job canceled while deferred or waiting.
Orphaned	Job being process by device uncompleted when jobs reprocessed. Job will automatically restart when able.
Deleted	The job was canceled by the user on the device.

## Product Job Logs

You can view more detail about product jobs by viewing the job logs.

Navigate to **Devices > List View** and select the friendly name of a device that has been provisioned with a product. Next, select the **More** tab, select **Products**, then select the magnifying glass icon to the right of the **Last Job Status** column. This action displays the **Jobs** screen which provides access to the contents of the Job logs.

The Job logs provide a detailed history of events that have elapsed for the device in question as it pertains to the assigned product. This history includes timestamps, progress, error messages, and pause/resume history.

### Job Log Detail Level

You can set the amount of detail captured in the Job Log by navigating to **Groups & Settings > All Settings > Devices & Users > Android > Agent Settings** then scroll down to the **Product Provisioning** section and select the **Job Log Level** you prefer.

You can also [Target a Device Log Level for Troubleshooting Purposes on page 76](#).

## Target a Device Log Level for Troubleshooting Purposes

You can target an individual device and temporarily change its logging level for troubleshooting purposes.

1. Navigate to **Devices > List View**, locate the device you want to troubleshoot and select the device friendly name to display the **Device Details**.
2. Click the **More** tab and select **Targeted Logging**.
3. Select **Create New Log** and select the length of time you want the log to capture data.
4. Select **Start** to begin the logging.

## Configure Targeted Job Log Collection

You can target individual devices for job log collection. To activate this option, take the following steps.

1. Navigate to **Groups & Settings > All Settings > Admin > Diagnostics > Logging**.
2. Select the **Enabled** slider for each component and **Scheduled Services** for which you want to collect data.
3. Scroll down to the **Targeted Logging** section, Enable the **Targeted Logging** slider, and complete the settings.

Setting	Description
<b>Organization Group(s)</b>	Select the organization group(s) where the device(s) reside(s).
<b>Device ID(s)</b>	Enter the device ID(s) for which you want to enable targeted logging. Use commas to separate multiple device IDs.
<b>File Storage Impersonation Enabled</b>	Enable if you are using a file storage server to store these targeted logs and enter the appropriate authentication credentials.
<b>File Path</b>	Enter the path and filename of the LOG file where you would like the data saved.
<b>File Storage Impersonation User Name</b>	This option appears only when <b>File Storage Impersonation Enabled</b> is checked. Enter the username of the storage server where you targeted logs are saved.
<b>File Storage Impersonation Password</b>	This option appears only when <b>File Storage Impersonation Enabled</b> is checked. Enter the corresponding password of the username of the storage server where you targeted logs are saved.
<b>Test Connection (button)</b>	Select this button to test the connection. It tests various possible scenarios which the logging process uses and makes sure it is working as expected.

4. **Save** to apply Targeted Logging.

Next, you can target an individual device for troubleshooting purposes. See [Target a Device Log Level for Troubleshooting Purposes on page 76](#).

## Define How Much Data to Collect

You can define the length of time job log data is collected. Define this timescale by taking the following steps.

1. Navigate to **Groups & Settings > All Settings > Admin > Data Purging**.
2. Locate the purge module named **DevicePolicyJobPurge** and select the pencil icon (✎) to open the **Data Purging** screen.
3. Complete the **Purge older than (days)** setting with the length of time in days that you want to keep job log data.
4. Select **Save**.

Job logs older than the selected number of days are purged from the Workspace ONE™ UEM console.

## Perform an Enterprise Reset

Enterprise Reset enables you to reset a device similar to an enterprise wipe, but with one important difference. Profiles and files/actions set to persist on a device are not removed and automatically reinstall on a device following the first reboot after an enterprise reset.

Enterprise Reset is only available for Windows Rugged Devices and Android legacy Motorola, Zebra, and Honeywell devices.

To perform an Enterprise Reset, take the following steps.

1. Navigate to **Devices > List View** and select a device you want to Enterprise Reset.
2. On the Device Details View, select the **More Actions** button.
3. Select **Enterprise Reset**, located under Management section.
4. Enter your **Security Pin** in the **Restrict Action** prompt to perform the Enterprise Reset.

**Note:** Enterprise Reset cannot run on devices with low battery levels. If you attempt an Enterprise Reset on a device with low battery level, a warning displays alerting to you about potential issues with the Enterprise Reset. On Android devices, the Enterprise Reset command is held until the device reaches sufficient battery level. Once the device is charged, the Reset occurs automatically.

# Chapter 6:

## Product Management

Manage products using the product provisioning management functionality. Use these tools in addition to the tools mentioned in the **Workspace ONE™ UEM Mobile Device Management Guide** to manage your rugged devices.

### Product Management Basics

Product management uses the Products Dashboard, Products List View, and Device Details View to manage how devices use products. Rugged devices have different device actions and options than consumer devices. Some actions, such as Remote Management, require additional configuration before using with devices.

Products must be deactivated before most device actions work. You must also disable any components before using device actions.

### Product Dashboard

View and manage products from the Products Dashboard. The dashboard provides an easy method of viewing the status of your products and the devices they provision. The charts of information allow you to select specific products or devices so you can remain informed about your device fleet. For more information, see [Products Dashboard on page 71](#).

### Products List View

The Product List view allows you to view, edit, copy, and delete products. From this view, you can also see the devices assigned the product. For more information, see [Products List View on page 73](#).

### Device Details View

You can use the Device Details View to see the products, files/actions, apps, and profiles pushed to a device. For more information, see [Products in the Device Details View on page 74](#).

## Product Job Status

Product provisioning works by handling each item in a product as a different job. As a product is pushed to a device, the UEM console updates the status of each job to display any errors or issues in the process. For more information, see [Product Job Statuses on page 75](#).

## Enterprise Reset

Enterprise Reset enables you to reset a device similar to an enterprise wipe, but with one important difference. Profiles and files/actions set to persist on a device are not removed and automatically reinstall on a device following the first reboot after an enterprise reset. For more information, see [Perform an Enterprise Reset on page 77](#).

## XML Provisioning

XML provisioning allows you to download a custom-designed XML file to a device in a provisioning product. After the file is downloaded, it runs an install command to extract the settings from the XML file and install them on the device. For more information, see [Create an XML Provisioning File on page 60](#).

## Device Dashboard

As devices are enrolled, you can manage them from the Workspace ONE™ UEM **Device Dashboard**. The **Device Dashboard** provides a high-level view of your entire fleet and allows you to act on individual devices quickly.

You can view graphical representations of relevant device information for your fleet, such as device ownership type, compliance statistics, and platform and OS breakdowns. You can access each set of devices in the presented categories by selecting any of the available data views from the **Device Dashboard**.

From the **List View**, you can take administrative action: send messages, lock devices, delete devices, and change groups associated with the device.

## Device List View

Select **Devices > List View** to see a full listing of all devices.

The **Last Seen** column displays an indicator showing the number of minutes elapsed since the device has checked-in.

Select a device in the **General Info** column at any time to open the details page for that device.

Sort by columns and configure information filters to review device activity based on specific information. For example, sort by the **Compliance Status** column to view only devices that are currently out-of-compliance and target only those devices. Search all devices for a friendly name or user name to isolate one device or user.

### Customize Device List View Layout

Display the full listing of visible columns in the **Device List** view by selecting the **Layout** button and select the **Custom** option. This view enables you to display or hide Device List columns per your preferences.

There is also an option to apply your customized column view to all administrators. For instance, you can hide 'Asset Number' from the **Device List**.

Once all your customizations are complete, select the **Accept** button to save your column preferences and apply this new column view. You can return to the **Layout** button settings at any time to tweak your column display preferences.

## Search in Device List View

You can search for a single device for quick access to its information and take remote action on the device.

To run a search, navigate to **Devices > List View**, select the **Search List** bar and enter a user name, device friendly name, or other device-identifying element. This action initiates a search across all devices, using your search parameter.



## Using the Device Details Page

The **Device Details** page allows you to track detailed device information and quickly access user and device management actions.

You can access the **Device Details** page by either selecting a device's Friendly Name from the **Device Search** page, from one of the available Dashboards or by using any of the available search tools with the Workspace ONE UEM console .

Android devices running Android M utilize power saving options for idle apps and devices. If a user unplugs a device and leaves it stationary, with its screen off, for a period of time, the device goes into **Doze** mode, where it attempts to keep the device in a sleep state. There will be no network activity during this time.

Additionally, **App Standby** mode allows the device to determine that an app is idle when the user is not actively using it. When devices are in either state, the Workspace ONE UEM console will not receive reports on device details. When the user plugs a device in to charge or opens an app, the device will resume normal operations and reporting from AirWatch apps installed on the device to the Workspace ONE UEM console resumes.

Use the **Device Details** menu tabs to access specific device information, including:

- **Summary** – View general statistics such as enrollment status, compliance, last seen, platform/model/OS, organization group, contact information, serial number, power status including battery health, storage capacity, physical memory and virtual memory. Zebra devices feature a panel displaying detailed battery information. You can also view the AirWatch Agent and which version of any applicable OEM is currently installed on the device.
- **Compliance** – Display the status, policy name, date of the previous and forthcoming compliance check and the actions already taken on the device.
- **Profiles** – View all MDM profiles currently installed on a device.
- **Apps** – View all apps currently installed or pending installation on the device.
- **Content** – View status, type, name, priority, deployment, last update, and date and time of views, and provide a toolbar for administrative action (install or delete content).
- **Location** – View current location or location history of a device.
- **User** – Access details about the user of a device as well as the status of the other devices enrolled to this user.

The menu tabs below are accessed by selecting **More** from the main Device Details tab (  ).

- **Network** – View current network (Cellular, Wi-Fi, Bluetooth) status of a device.
- **Security** – View current security status of a device based on security settings.
- **Telecom** – View all amounts of calls, data and messages sent and received involving the device.
- **Notes** – View and add notes regarding the device. For example, note the shipping status or if the device is in repair and out of commission.
- **Certificates** – Identify device certificates by name and issuant. This tab also provides information about certificate expiration.
- **Provisioning** – View complete history and status of all packages provisioned to the device and any provisioning errors.

- **Terms of Use** – View a list of End User License Agreements (EULAs) which have been accepted during device enrollment.
- **Alerts** – View all alerts associated with the device.
- **Shared Device Log** – View history of device in terms of Shared Device, including past check-ins and check-outs and current status.
- **Event Log** – View history of device in relation to MDM, including instances of debug, information and server check-ins.
- **Status History** – View history of device in relation to enrollment status.
- **Management** – Lock or perform Enterprise Wipe on all selected devices.  
When you lock a SAFE 4 device, you can configure a customized lock screen. Set the **Message Template** to **Custom Message**. Then, in the **Message** field, provide your text and provide a **Phone Number**.
- **Support** – Send a message to email AirWatch Technical Support regarding selected device. Also, locate the device according to its current GPS location.
- **Admin** – Change Workspace ONE UEM console settings, including changing organization group of selected devices or deleting devices from Workspace ONE UEM.
- **Advanced** – Perform a warm boot on devices to remotely reboot those devices. Select **Provision Now** to perform a number of configurations for selected devices.

## AirWatch Cloud Messaging

AirWatch Cloud Messaging (AWCM) provides an internal communication solution for the entire Workspace ONE UEM solution as a comprehensive replacement for Google Cloud Messaging (GCM).

AWCM provides real-time device management status and command pushes for:

- Devices that cannot be configured with a Google Account.
- Devices restricted to internal network communication.
- Devices without public Internet access.

Enable AWCM by navigating to **Devices > Device Settings > Android > Agent Settings > AirWatch Cloud Messaging**.

Select **Enabled** on **Use AWCM Instead of C2DM** to enable AWCM. Selecting this option locks the deployment type to **Always Running** so that the system and device have a constant and ongoing line of communication. You may also choose to leave the **Use AWCM Instead of C2DM** check box unchecked and decide to make the deployment type **Always Running** or **Manual**, with an associated timeout value.

## Advanced Remote Management

Advanced Remote Management (ARM) allows you to connect remotely to end-user devices so you can help with troubleshooting and maintenance. ARM requires your computer and the end-user device to connect to the Remote Management Server to facilitate communication between the Workspace ONE UEM console and the end-user device.

For more information on installing, configuring, and using Advanced Remote Management, see the **VMware Workspace ONE UEM Advanced Remote Management Guide**, available on [docs.vmware.com](https://docs.vmware.com).

## Platform OEM Service

The Platform OEM (POEM) Service is an additional app that allows the Workspace ONE UEM console to provide extended management capabilities to Android legacy devices only.

After you enroll, the Workspace ONE UEM console automatically detects if the device can take advantage of additional device capabilities, and deploys an Original Equipment Manufacturer (OEM) specific service application to your Android. The OEM Service app is a plug-in app that is only installed and used in combination with AirWatch Agent enrollment. It allows for additional MDM capabilities that only pertain to a specific OEM device. All of these APKs are available through AirWatch Resources by request. There are a few service apps that we publish to the Google Play Store (see list below).

Here is a sample of supported features and available OEMs for the Platform OEM Service.

### POEM Service Features

- Silent App installation, uninstallation, and updates
- Silent Device Administrator Activation on launch
- Date/Time configuration (date format, time format, time zone, server time, SNTP, HTTP URL, or Auto)
- Toggle Bluetooth on/off with the Disable Bluetooth restriction
- Disable installation from unknown sources on 5.0 Lollipop and above
- Device Reboot

### POEM Service Versions

- Bluebird
- Cube
- Getac
- Honeywell
- HP
- Intermec
- Lenovo
- Mediawave
- Panasonic
- Sonim
- Zebra CC5000

## POEM Service Version Available on the Google Play Store

- Samsung
- Sony
- LG
- Huawei
- Zebra
- Honeywell