Managing Devices

VMware Workspace ONE UEM 2102

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Managing Devices with Workspace ONE UEM

1

Manage devices in your fleet and perform functions on a particular set of devices with Workspace ONE UEM.

You can examine the data flow with the **Monitor** and take a closer look at your fleet with **Device Dashboard**. You can group devices together and create customized lists with the **Device List View**.

You can also generate **Reports** and use **Tags** to easily identify devices. You can even set up the **Self-Service Portal (SSP)** to enable end users to manage their own devices and reduce the strain on Help Desk personnel. For details, see Self-Service Portal Into Workspace ONE UEM.

Device Dashboard

As devices are enrolled, you can manage them from the **Device Dashboard** in Workspace ONE UEM.

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.

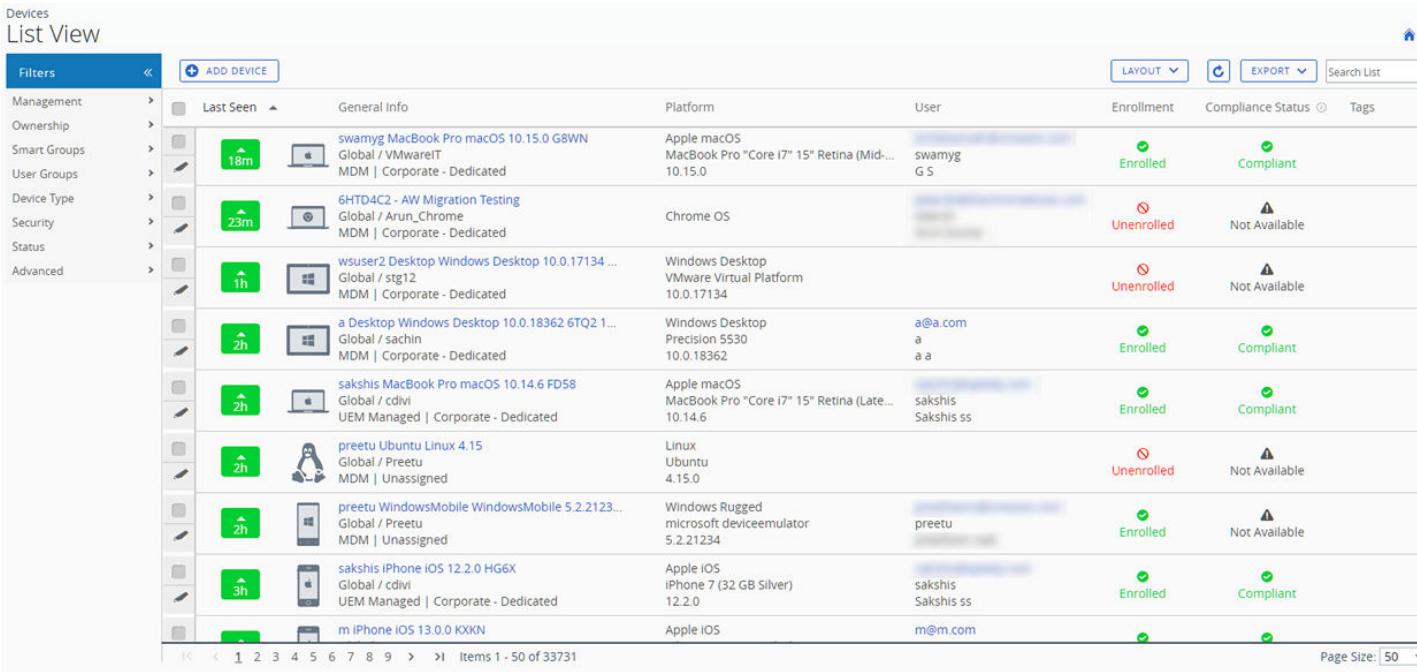
- **Security** – View the top causes of security issues in your device fleet. Selecting any of the doughnut charts displays a filtered **Device List** view comprised of devices affected by the selected security issue. If supported by the platform, you can configure a compliance policy to act on these devices.
  - **Compromised** – The number and percentage of compromised devices (jailbroken or rooted) in your deployment.
  - **No Passcode** – The number and percentage of devices without a passcode configured for security.
  - **Not Encrypted** – The number and percentage of devices that are not encrypted for security. This reported figure excludes Android SD Card encryption. Only those Android devices lacking disc encryption are reported in the donut graph.

- **Ownership** – View the total number of devices in each ownership category. Selecting any of the bar graph segments displays a filtered **Device List** view comprised of devices affected by the selected ownership type.
- **Last Seen Overview/Breakdown** – View the number and percentage of devices that have recently communicated with the Workspace ONE UEM MDM server. For example, if several devices have not been seen in over 30 days, select the corresponding bar graph to display only those devices. You can then select all these filtered devices and send out a query command so that the devices can check in.
- **Platforms** – View the total number of devices in each device platform category. Selecting any of the graphs displays a filtered **Device List** view comprised of devices under the selected platform.
- **Enrollment** – View the total number of devices in each enrollment category. Selecting any of the graphs displays a filtered **Device List** view comprised of devices with the selected enrollment status.
- **Operating System Breakdown** – View devices in your fleet based on operating system. There are separate charts for each supported OS. Selecting any of the graphs displays a filtered **Device List** view comprised of devices running the selected OS version.

Device List View

2

Use the Device List View in Workspace ONE UEM to see a full listing of devices in the currently selected organization group.



The **Last Seen** column displays an indicator showing the number of minutes elapsed since the device has checked-in. The indicator is red or green, depending on how long the device is inactive. The default value is 480 minutes (8 hours) but you can customize this by navigating to **Groups & Settings > All Settings > Devices & Users > General > Advanced** and change the **Device Inactivity Timeout (min)** value.

Select a device-friendly name in the **General Info** column at any time to open the details page for that device. A **Friendly Name** is the label you assign to a device to help you differentiate devices of the same make and model.

Sort by columns and configure information filters to review 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.

Hover-Over Pop-Up Window in Device List View

Each device in the **General Info** column features a tool tip icon in the shape of a folder located in the upper-right corner next to the device friendly name. When this icon is tapped (mobile touch device) or hovered-over with a mouse pointer (PC or Mac), it displays a Hover-Over pop-up window. This pop-up window contains information such as **Friendly Name**, **Organization Group**, **Group ID**, **Management**, and **Ownership**.

Similar tool tip icons are found in the **Enrollment** and **Compliance Status** columns in the Device List view. These tool tip icons feature Hover-Over Pop-Up windows displaying **Enrollment Date** and **Compliance Violations** respectively.

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 at or below the current organization group (OG). For instance, you can hide 'Asset Number' from the **Device List** views of the current OG and of all the OGs underneath.

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.

Some notable device list view custom layout columns include the following.

- Android Management
- SSID (Service Set Identifier or Wi-Fi network name)
- Wi-Fi MAC Address
- Wi-Fi IP Address
- Public IP Address

Exporting List View

Select the **Export** button to save an XLSX or CSV (comma-separated values) file of the entire **Device List View** that can be viewed and analyzed with MS Excel. If you have a filter applied to the **Device List View**, the exported listing reflects the filtered results.

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, within the current organization group and all child groups.

Device List View Action Button Cluster

With one or more devices selected in the Device List View, you can perform common actions with the action button cluster including Query, Send [Message], Lock, and other actions accessed through the **More Actions** button.

Available Device Actions vary by platform, device manufacturer, model, enrollment status, and the specific configuration of your Workspace ONE UEM console.

For a full listing of remote actions an admin can invoke using the console, see Device Actions by Platform.

Remote Assist

You can start a **Remote Assist** session on a single qualifying device allowing you to remotely view the screen and control the device. This feature is ideal for troubleshooting and performing advanced configurations on devices in your fleet.

To use this feature, you must satisfy the following requirements.

- You must own a valid license for Workspace ONE Assist.
- You must be an administrator with a role assigned that includes the appropriate Assist permissions.
- The Assist app must be installed on the device.
- Supported device platforms:
  - Android
  - iOS
  - macOS
  - Windows 10
  - Windows Mobile

Select the check box to the left of a qualifying device in the **Device List View** and the **Remote Assist** button displays. Select this button to initiate a Remote Assist session.

For more information, see the Workspace ONE Assist Guide.

Unenrolled Devices

Unenrolled devices may or may not be viewed in the Workspace ONE UEM console depending upon whether they were registered or held an enrolled status in the past. You can also get access to troubleshooting logs made before a device's unenrollment from the UEM console.

Unenrolled Status

An unenrolled device is a device in one of three possible scenarios.

1 The device is new to Workspace ONE UEM and is not registered, not enrolled, and therefore not managed. A device in this scenario cannot be seen in the UEM console.

2 The new device has begun the Workspace ONE enrollment process and is registered with the UEM console but not yet fully enrolled. This scenario normally occurs during a wave of new enrollments where devices are registered as a way of restricting enrollment. The mechanism that allows registered devices to enroll is a device allowlist. A device in this state can be seen by the UEM console with the status 'unenrolled'. Given that a registered device is traditionally a part of the enrollment process, a device does not remain in this scenario for long.

3 A device can also become unenrolled if the device end user manually removes the MDM profile from the device.

For more information, see the section on this page entitled **Deleting Devices**.

Access Troubleshooting Logs Made Before Unenrollment

You can access Troubleshooting/Commands logs made before the device was unenrolled. These logs can be useful to get a full picture of the device's history.

1 Navigate to **Devices > List View**.

2 Select a device you know to have been unenrolled in the past. You have the option to **Filter** the list view to show only devices with a **Status** of **Unenrolled**.

Result: When you select a device, the **Details View** displays.

3 Select the **More** tab drop-down, then select **Troubleshooting**, followed by the **Commands** tab.

What to do next: If you do not intend to re-enroll a previously unenrolled device to the same customer organization group again, consider deleting the device record permanently so the device history is clear upon re-enrollment. Contact Workspace ONE Support to make this arrangement.

Bulk Actions in Device List View

Once you filter a subset of devices, you can perform bulk actions to multiple devices by selecting devices and then selecting from the action button cluster.

Bulk actions are only available in the Device List View if they are enabled in the system settings (**Groups & Settings > All Settings > System > Security > Restricted Actions**). Password Protect Actions require a PIN to perform.

With devices selected in the **List View**, the number of devices selected is displayed next to the action buttons. This number includes filtered devices that are selected as well.

Note In the Device List View, the bulk actions available when you select a block of devices with the shift key may be different than the bulk actions available when you use the Global check box.

For more information about affected actions, see Chapter 6 Device Actions and for details about selection methods, see the section on this page entitled **Selecting Devices in Device List View**.

Bulk Management Limit in Device List View

You can set a maximum number of devices that can receive a bulk action command to ensure smooth operations when managing a large device fleet.

Change these limits by navigating to **Groups & Settings > All Settings > Devices & Users > Advanced > Bulk Management**. There are several device actions listed for which you can change the maximum devices allowed for that action.

When a bulk management limit is in place and multiple devices are selected, a link appears next to the 'number of items selected' message which reads: **Some actions disabled due to bulk limits**. This means that the number of devices you have selected exceed the maximum number of devices allowed for certain device actions.

You can select this link to learn which actions have been disabled.

Queued Bulk Action Warning in Device List View

Bulk actions take time to process. When you initiate a new bulk action while the Workspace ONE ™ UEM console is processing an existing bulk action, a warning message displays.

```
Your previous bulk actions requested are still being processed. This request is run once the
previous actions are complete. Do you want to continue with the current request?
```

Select **Yes** to add the new bulk action to the queue. Select **No** to cancel the new bulk action.

Selecting Devices in Device List View

You can select individual devices on a page by ticking individual check boxes to the left of each device. You can also select a block of devices across multiple pages. You can even select all devices in your entire fleet, which might trigger the restricted actions warning.

Selecting a Block of Devices

You can select a contiguous block of devices, even across multiple pages, by selecting the device check box at the beginning of the block. Next, hold down the shift key, then select the device check box at the end of the block. This action is similar to the block-selection in the Windows and Mac environments and it allows you to apply bulk actions to those selected devices.

Selecting All Devices

The Global check box, located to the left of the **Last Seen** column header, can be used to select or deselect all devices in the listing. If your **List View** contains a filtered listing of devices, the Global check box can be used to select or deselect all filtered devices.

When the Global check box features a green minus sign (), it means at least one but not all devices are selected. Select this icon again and it changes to a check mark sign (), indicating that all devices in the listing (either filtered or unfiltered) have been selected. Select it a third time and it changes again to an empty check box (), indicating that no devices in the listing are currently selected.

Note In the Device List View, the bulk actions available when you select a block of devices with the shift key may be different than the bulk actions available when you use the Global check box.

For more information about affected actions, see Chapter 6 Device Actions.

Restricted Action Warning on All Devices Selected

When you initiate an action with all devices in your fleet selected, a warning message is displayed.

You are attempting to act on [number of selected] devices. This action may not apply to all devices. Certain limitations of this action include enrollment status, management type, device platform, model, or OS.

This warning is an acknowledgment of the diverse nature of a large device fleet featuring a multitude of different manufacturers, operating systems, and capabilities. It is unrelated to the **Bulk Management Limit** and any warnings it might generate. If you have a **Bulk Management Limit** in place, then this **Restricted Action Warning** message does not display.

Deleting Devices

You can delete an enrolled device from the Workspace ONE UEM console.

Deleting a device has the following three impacts.

1 It removes the device from the Device List View.

2 An *Enterprise Wipe is executed, removing any sensitive corporate content from the device.

3 The device is thereby excluded from all device management functions and features.

However, a deleted device is still registered with the UEM console and gets added to the allowlist. This addition means the deleted device can be re-enrolled easily. A device can remain in this scenario indefinitely. You can retain up to approximately 150,000 devices on this allowlist. Contact support if your needs exceed this amount.

You can remove the registration record of any allowlisted device at any time, which makes the device unseen and unknown by the UEM console. A device in this scenario can be enrolled at a future date.

Alternately, you can remove the device from the allowlist and add the device to a denylist, preventing future enrollment and effectively banning the device from your fleet.

For more information about Denylisting and Allowlisting devices, see Denylist and Allowlist Device Registrations.

You can delete a device from the Device List View or the Device Details View.

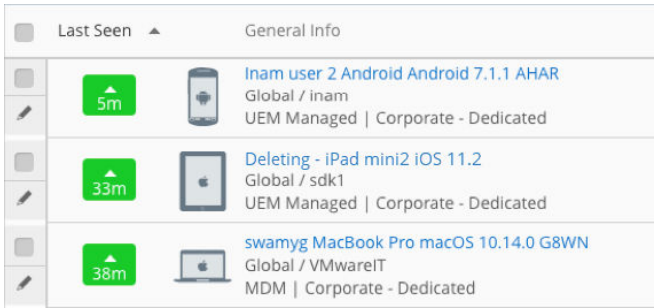
1 Navigate to **Devices > List View** and select the device you want to delete by clicking the check box to the left of the device listing.

   a Some devices cannot be deleted from the list view. If you want to delete such a device, navigate to **Devices > List View** and instead, select the device **Friendly Name** in the **General Info** column. This action displays the **Details View**. The **Friendly Name** is the label you assign to a device to help you differentiate devices of the same make and model.

2 Locate the **More Actions** button and select it.

3 Select **Delete Device** and select **OK** at the confirmation prompt.

Results: the Device List View entry for the deleted device includes the "Deleting" indicator.



* When you select multiple devices to be deleted, you may trigger the Wipe Protection feature. Any devices wiped after the wipe protection is unlocked must be manually deleted.

For example, if you select 25 devices to be deleted and Wipe Protection is activated after 10 deletions, the remaining 15 devices are enterprise wiped after you unlock wipe protection but they are not deleted from UEM as the first 10 were. You must delete these 15 remaining devices manually.

For details, see Chapter 16 Wipe Protection.

This chapter includes the following topics:

- Filtering Devices in List View
- Add a Device from List View

Filtering Devices in List View

You can apply filters to view only the devices you want to see. Select the **Filter** button to display all of the following filters to view only those devices that fit the categories you select.

Specify as many filters as you want. The device listing does not update until you select the **Apply** button *.

Setting	Description
Management	Display devices that have **App Level** management or devices managed by **Catalog**, **Container**, or **MDM**. Display devices managed by an **Unknown** method, are **Offline**, or **All** management methods.
Ownership	Display devices that have the ownership levels **Corporate - Dedicated**, **Corporate - Shared**, **Employee Owned**, or **Unassigned**. You can filter one or more ownership levels at a time.
Smart Groups	Display devices that are part of the Smart Group that you select. Click the **Search** text box and select from the list of Smart Groups that appear. Scroll down to view the alphabetical listing of Smart Groups.
User Groups	Display devices that are part of the User Groups that you select. Click the **Search** text box and select from the list of User Groups that appear. Scroll down to view the alphabetical listing of User Groups.
Device Type	
Platform	Select from among the full listing of device platforms. You can filter more than one platform at a time.
Android Management *	Available only when **Android** platform is selected. You must select at least one platform and click the **Apply** button before you can select management types. Filter among the device management types specific to the Android platform. You can also enable the Android Management column to appear by Customize Device List View Layout. This column also appears in Exporting List View.
Device Models *	You must select at least one platform and click the **Apply** button before you can select device models.
OS Version *	You must select at least one platform and click the **Apply** button before you can select OS versions. When you select multiple platforms, a list of OS versions displays grouped by each selected platform.
Security	
Compromised	Select from among **Compromised**, **Not Compromised**, **Unknown**, or **All** of the above. A compromised device is a device that has been 'jailbroken' (for iOS devices) or 'rooted' (for Android devices).
Encryption	Select from among **Encrypted**, **Not Encrypted**, **Unknown**, or **All** of the above.
Passcode	Select from among **Passcode**, **No Passcode**, **Unknown**, or **All** passcode options.

Setting	Description
Status	
Enrollment Status	Select from among **Enrolled**, **Enterprise Wipe Pending**, **Device Wipe Pending**, **Unenrolled**, or **All** of the above.
Last Seen	Display devices based on how long ago they checked in. Use the minimum and maximum text boxes in the **Last Seen (days)** option to display devices last seen within a range of days. Entered numbers are inclusive: an entry of 1 displays all devices last seen more than 1 day but less than 2 days ago. An entry of 2 displays all devices last seen more than 2 days but less than 3 days ago, and so on. An entry of zero displays devices last seen more than 0 days but less than 1 day (24 hours) ago. To display devices last seen more than (or equal to) the maximum entered number of days, leave the minimum text box blank. To display devices last seen less than (or equal to) the minimum entered number of days, leave the maximum text box blank.
Compliance	Select from among **Compliant**, **Non-Compliant**, **Pending Compliance Check**, **Not Available**, **Unknown**, or **All** of the above.
Enrollment History	Select enrollment dates from among **Past Day**, **Past Week**, **Past Month**, or **All** enrollment dates.
Advanced	
MAC Address	Filter by the media access control address of a device.
IP Range	Filter devices by their currently-assigned internet protocol address. Enter IP addresses in the **IP Range Start** and **IP Range End** text boxes to display devices that fall within that range. The current IP address can be one of many associated IP addresses of a device, most of which can be found on the Network tab of Device Details.
Tags	View devices by their assigned tags for which you can search and select from a drop-down menu.
Tunnel	Select between showing all devices, showing devices connected to the tunnel, and devices not connected to the tunnel.
Content Compliance	Select between showing all devices, showing only those devices missing required docs, and only those devices lacking the latest version of required content.
Lost Mode	View all devices or only devices with Lost Mode enabled. Applicable to iOS devices only.

After applying multiple filters, you can glance at the circled number badge to the right of the **Filters** button to see exactly how many filters are applied to produce the listing.

You can clear all selected filters and return to the full device listing by selecting the 'X' next to the **Filter** button.

Add a Device from List View

You can add or register a device including user assignment, custom attributes, and tagging.

Procedure

1 Navigate to **Devices > List View** or **Devices > Lifecycle > Enrollment Status**.

2 Select the **Add Device** button. The **Add Device** page displays. Complete the following settings.

Table 2-1. User

Setting	Description
Search Text	Each device must be assigned to a user. Search for a user with this text box by entering search parameters and select the **Search User** button. You can select a user from among the search results or select the link **Create New User**.

Table 2-2. Create New User

Settings	Description
Security Type	Select between **Basic** and **Directory** users. For more information, see the topics, Basic Authentication, and Active Directory Authentication.
User name	Enter the user name by which your user is identified in your environment.
Password, **Confirm Password**	Enter and confirm the password that corresponds to the user name.
Email Address	Enter the email address for the user account.
Enrollment Organization Group	The organization group (OG) that serves as the enrollment OG for the device enrollment.
Show advanced user details	Display all the advanced user details, including comprehensive information covering user name, user phone number, and manager name. Also included are optional identification settings such as department, employee ID, and cost center. Select the default **User Role** for the user you are adding which determines which permissions the user has while using a connected device. For more information, see the topic User Roles.

Table 2-3. Device

Settings	Description
Expected Friendly Name	A device's **Expected Friendly Name** is the label you assign to a device to help you differentiate devices of the same make and model. You can opt for a manually entered friendly name or you can incorporate lookup values. For details, see Chapter 12 Lookup Values.
Organization Group	Select the organization group from the drop-down menu with which the device is to be associated.
Ownership	Select the device ownership from the drop-down menu. Select between **None**, **Corporate - Dedicated**, **Corporate - Shared**, and **Employee-Owned**.
Platform	Select the platform of the device from the drop-down menu.
Show advanced device information options	Display all the advanced device information settings.

Table 2-4. Advanced Device Information Settings

Settings	Description
Model	Select the device model from the drop-down listing. The contents of this drop-down menu depend upon the selection made in the **Platform** drop-down menu.
OS	Select the device's operating system from the drop-down listing. The contents of this drop-down menu depend upon the selection made in the **Platform** drop-down menu.
UDID	Enter the device's Unique Device Identifier.
Serial Number	Enter the device's serial number.
IMEI	Enter the device's 15-digit International Mobile Station Equipment Identity.
SIM	Enter the device's SIM card specifications.
Asset Number	Enter the asset number for the device. This number is created internally from within your organization and this setting is provided to hold this data point.

Table 2-5. Messaging

Setting	Description
Message Type	Select the type of message you want to send (**None**, **SMS**, or **Email**) to the device upon a successful enrollment to the environment.
Email Address	Enter the email address to which you want the enrollment message sent. This text box is only available when Email is selected as the **Message Type**.
Email Message Template	Select the email template from the drop-down menu. There is a link you can use to open the Message Template page where you can create an email message template.
Phone Number	Enter the phone number to which you want the SMS text message sent. This text box is only available when SMS is selected as the **Message Type**.
SMS Message Template	Select the SMS template from the drop-down menu. There is a link you can use to open the Message Template page where you can create an SMS message template.

3 (Optional) Assign **Custom Attributes** to the device. Select the **Add** button and supply an **Attribute** and its **Value**.

4 (Optional) Assign **Tags** to the device. Select the **Add** button and select a tag from the drop-down menu for each tag you want to assign.

5 Select **Save**.

Certificate Management

3

Consider implementing digital certificates for securing your corporate assets. Certificates offer a level of stability, security, and authentication with which passwords cannot compete. Workspace ONE UEM powered by AirWatch solves this problem of ensuring security throughout the lifecycle of a device by using digital certificates.

As the mobility of sensitive corporate content becomes the norm, the probability of unauthorized access and malicious threats increases. Even if you protect your corporate email, Wi-Fi, and virtual private network (VPN) using strong passwords, your infrastructure remains vulnerable to brute force attacks, dictionary attacks, and employee error.

Revoke and Renew Digital Certificates

Once issued, Workspace ONE UEM enables you to manage deployed digital certificates using the **Certificate List View**. Administrators can view and sort certificates by device, authority, user, profile, issued date, and so on. You can revoke and renew certificates individually or in bulk.

The Certificate List View provides a summary of deployed certificates and the ability to renew or revoke certificates individually or in bulk. Locate and revoke all digital certificates from a deactivated user/device or even renew/rotate all Wi-Fi authentication certs before a compliance driven expiration date.

1 Initiate the process by navigating to **Devices > Certificates > List View**.

2 Identify and select the digital certificates you want to renew or revoke by inserting one or more check marks in the empty check boxes.

3 Select the action button that you want to apply the action to the selected certificates. Choose from the following.

- Renew
- Revoke

Certificate Integration Resources

Each of the certificate documents accepted by Workspace ONE UEM are detailed by visitng Certificate Authority Integrations.

Compliance Policies

4

The compliance engine is an automated tool by Workspace ONE UEM powered by AirWatch that ensures all devices abide by policies that you define. These policies can include basic security settings such as requiring a passcode and enforcing certain precautions including passcode strength, denylisting certain apps, and requiring device check-in intervals.

Once devices are determined to be out of compliance, the compliance engine warns users to address compliance errors to prevent disciplinary action on the device. For example, the compliance engine can trigger a message to notify the user that their device is out of compliance.

In addition, devices not in compliance cannot have device profiles assigned to it and cannot have apps installed on the device. If corrections are not made in the amount of time specified, the device loses access to certain content and functions that you define. The available compliance policies and actions vary by platform.

You can automate escalations when corrections are not made, for example, locking down the device and notifying the user to contact you to unlock the device. These escalation steps, disciplinary actions, grace periods, and messages are all customizable with the Unified Endpoint Management Console.

There are two methods by which compliance is measured.

- Real Time Compliance (RTC)

  Unscheduled samples received from the device are used to determine whether or not the device is compliant. The samples are requested on demand by the admin.

- Engine Compliance

  The compliance engine, a software algorithm that receives and measures scheduled samples, primarily determines the compliance of a device. The time intervals for the running of the scheduler are defined in the console by the admin.

Enforcing mobile security policies is represented by this general overview.

1 Choose your platform.

  Determine on which platform you want to enforce compliance. After you select a platform, you are never shown an option that does not apply to that platform.

2 Build your policies.

Customize your policy to cover everything from an application list, compromised status, encryption, manufacturer, model and OS version, passcode and roaming.

3 Define escalation.

Configure time-based actions in hours or days and take a tiered approach to those actions.

4 Specify actions.

Send SMS, email, or push notifications to the user device or send an email only to an Administrator. Request device check-in, remove or block specific profiles, install compliance profiles, remove, or block apps and perform an enterprise wipe.

5 Configure assignments.

Assign your compliance policy by organization group or smart group then confirm the assignment by device.

Confirm the Health of Windows Devices

Windows devices enable you to configure and scan the health of the device at startup to ensure that your corporate resources are secure. For more information, see the topic **Compromised Device Detection with Health Attestation** found in the **Windows Desktop Device Management** documentation on docs.vmware.com.

This chapter includes the following topics:

- Compliance Policies List View
- Compliance Policy Rules by Platform
- Add a Compliance Policy
- Compromised Device Detection with Health Attestation

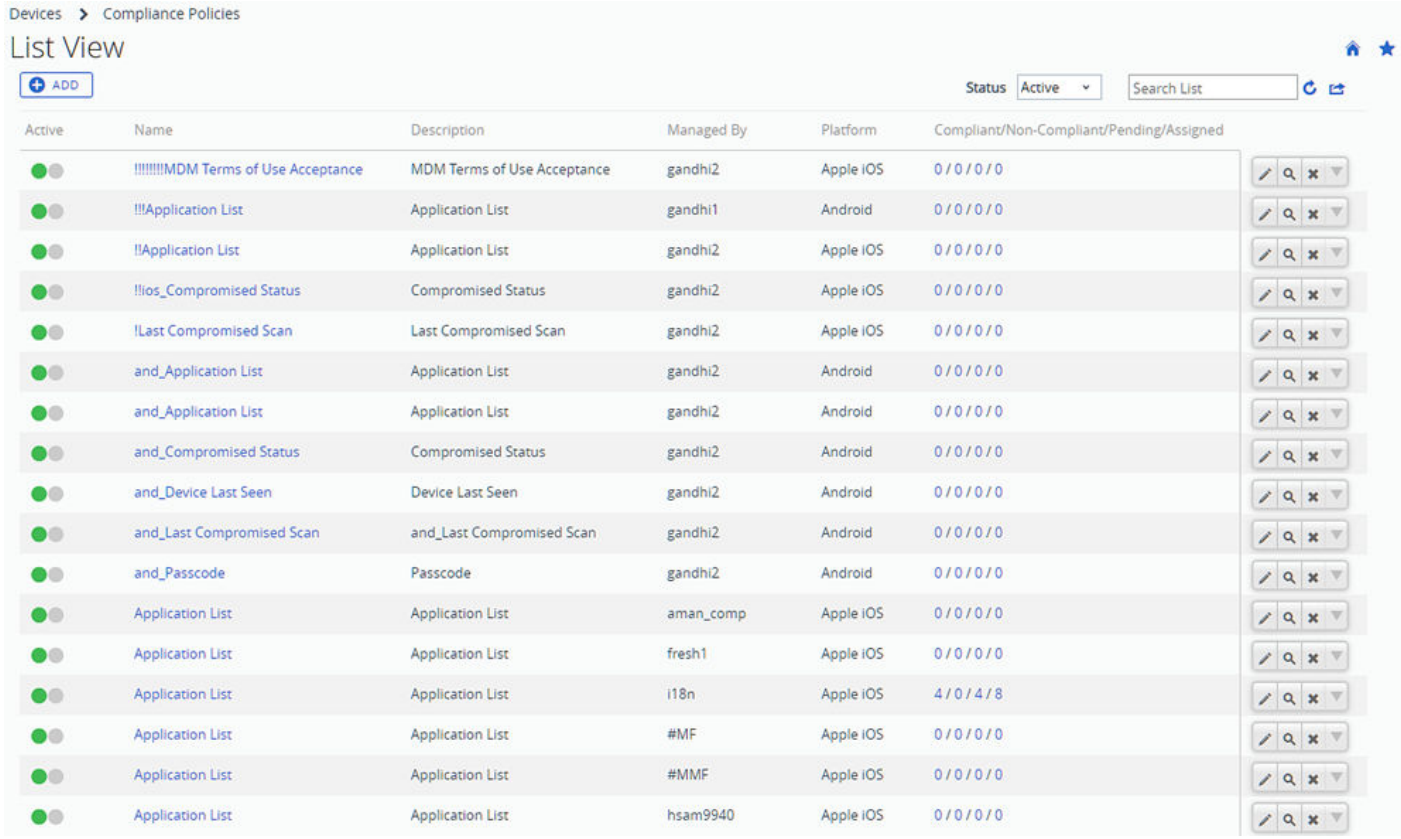
Compliance Policies List View

The Compliance Policies List View in Workspace ONE UEM powered by AirWatch enables you to see all the active and inactive compliance policies and their configurations.

Devices are placed in a **Pending** compliance status during an initial enrollment. Creating, saving, and assigning a policy to an enrolled device causes the device compliance status to either be **Compliant** or **NonCompliant**.

Similarly, changes to **Smart Group** assignments only cause a device compliance policy to be **Pending** when the device is new to the smart group. Devices already assigned to the smart group cannot see their compliance status change simply because the smart group expands (or contracts) its assignment.

View the Compliance Policy List view by navigating to **Devices > Compliance Policies > List View**.

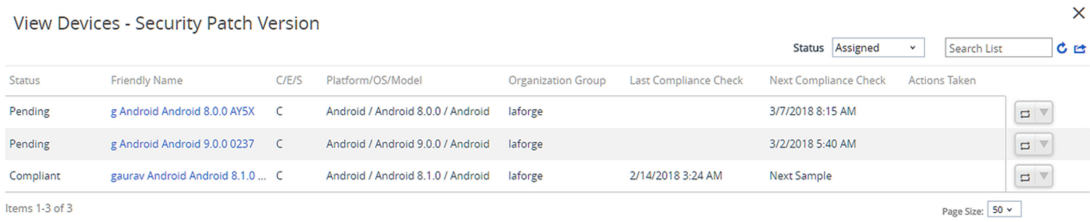


Setting	Description
Status	Filter the listing between **All**, **Active** and **Inactive** statuses.
Actions Menu 	View and edit individual policies, view devices to which the policy has been assigned, and delete policies you no longer want to keep.
Compliant / NonCompliant / Pending / Assigned	The digits in this column feature hypertext links that, when selected, display the **View Devices** page for the specific status on the selected compliance policy. The **Assigned** status is the sum of **Compliant**, **NonCompliant**, and **Pending** devices. For more information, see View Devices Page.

View Devices Page

The **View Devices** page is used to view compliance details for each device that is assigned to the selected policy. It is displayed when you select one of the hyperlink text digits in the Compliance Policy List View column titled **Compliant / NonCompliant / Pending / Assigned**.

Filter the listing among these four statuses by selecting from the **Status** drop-down menu. The **Assigned** status is the sum of **Compliant**, **Non-Compliant**, and **Pending** statuses.



There are three listed device statuses in the **Status** column.

- **Compliant** – The assigned compliance policy has determined that the device is compliant.
- **Non-Compliant** – The assigned compliance policy has determined that the device is non-compliant.
- **Pending** – The compliance policy is scheduled to be assigned to the newly enrolled device.

You can also confirm the **C/E/S** (ownership) of the device, the **Platform/OS/Model**, **Organization Group**, **Last Compliance Check**, **Next Compliance Check**, and **Actions Taken**. The Actions Taken column lists the actions that have been taken to address non-compliant devices.

You may also choose to reevaluate the compliance for a specific device. Engage the compliance engine and re-report compliance status on the device by selecting **Re-Evaluate Compliance** ( ).

Compliance Policy Rules by Platform

Not all compliance policy rules apply to all platforms managed by Workspace ONE UEM powered by AirWatch. The **Add a Compliance Policy** page is platform-based so you see only the compliance policy rules and actions that apply to your device.

Use the following table to determine which rules are available to deploy to your devices.

Compliance Policy	Android and Android Legacy	Apple iOS	Apple macOS	Chrome OS	QNX	Windows Rugged	Windows 10 Desktop
Application List	✓	✓	✓				
Antivirus Status							✓
Cell Data Usage	✓	✓					
Cell Message Usage	✓						
Cell Voice Usage	✓						
Compliance Attribute							✓
Compromised Status	✓	✓					✓
Device Last Seen	✓	✓	✓	✓	✓	✓	✓
Device Manufacturer	✓						
Encryption	✓	✓	✓				✓

Compliance Policy	Android and Android Legacy	Apple iOS	Apple macOS	Chrome OS	QNX	Windows Rugged	Windows 10 Desktop
Firewall Status			✓				✓
Free Disk Space		✓					
iBeacon Area		✓					
Interactive Certificate Profile Expiry	✓	✓					
Last Compromised Scan	✓	✓					
MDM Terms of Use Acceptance	✓	✓	✓			✓	✓
Model	✓	✓	✓				
OS Version	✓	✓	✓	✓			✓
Passcode	✓	✓					✓
Roaming *	✓	✓					✓
Roaming Cell Data Usage *	✓	✓					
Security Patch Version	✓						
SIM Card Change *	✓	✓					
System Integrity Protection			✓				
Windows Automatic Update Status							✓
Windows Copy Genuine Validation							

Note * Only available for Telecom Advanced Users.

Compliance Policy Rules Descriptions

Compliance policy rules enable you to construct a solid foundation for your policy as the component parts of a policy. The actions, escalations, and assignments that follow are all built upon these rules.

Setting	Description
Application List	Detect specific denylisted apps that are installed on a device, or detect all apps that are not allowlisted. You can prohibit certain apps (such as social media apps) and apps denylisted by vendors, or permit only the apps you specify. Due to the way application status is reported on iOS devices, an app achieves 'Installed' status only after the installation process is fully completed. For this reason, if you are making a compliance rule that measures the application list of iOS devices, consider enforcing an action that avoids the destruction of data. For example, enterprise wipe or device wipe.
Antivirus Status	Detect whether or not an antivirus app is running. The compliance policy engine monitors the Action Center on the device for an antivirus solution. Windows supports all third-party antivirus solutions.
Cell Data/Message/ Voice Use	Detect when end-user devices exceed a particular threshold of their assigned telecom plan. Workspace ONE UEM can only provide *notification* of when usage exceeds a predetermined threshold, UEM cannot limit the actual usage. In order for this policy rule to function correctly, you must enable **Advanced** telecom and assign that telecom plan to the device.
Compliance Attribute	Compare attribute keys in the device against third-party endpoint security, which returns a Boolean value representing device compliance. Only available for Windows Desktop devices.
Compromised Status	Detect if the device is compromised. Prohibit the use of jailbroken or rooted devices that are enrolled with Workspace ONE UEM. Jailbroken and rooted devices strip away integral security settings and can introduce malware in your network and provide access to your enterprise resources. Monitoring for compromised device status is especially important in BYOD environments where employees have various versions of devices and operating systems.
Device Last Seen	Detect if the device fails to check in within an allotted time window.
Device Manufacturer	Detect the device manufacturer allowing you to identify certain Android devices. You can specifically prohibit certain manufacturers or permit only the manufacturers you specify.
Encryption	Detect whether or not encryption is enabled on the device. Windows supports all third-party encryption solutions.
Firewall Status	Detect whether or not a firewall app is running. The compliance policy engine checks the Action Center on the device for a firewall solution. Windows supports all third-party firewall solutions.
Free Disk Space	Detect the available hard disk space on the device.
iBeacon Area	Detect whether your iOS device is within the area of an iBeacon Group.
Interactive Certificate Profile Expiry	Detect when an installed profile on the device expires within the specified length of time.
Last Compromised Scan	Detect if the device has not reported its compromised status within the specified schedule.
MDM Terms of Use Acceptance	Detect if the end user has not accepted the current MDM Terms of Use within a specified length of time.
Model	Detect the device model. You can specifically prohibit certain models or permit only the models you specify.
OS Version	Detect the device OS version. You can prohibit certain OS versions or permit only the operating systems and versions you specify.

Setting	Description
Passcode	Detect whether a passcode is present on the device.
Roaming*	Detect if the device is roaming.
Roaming Cell Data Use*	Detect roaming cell data use against a static amount of data measured in MB or GB.
Security Patch Version	Detect the date of the Android device's most recent security patch from Google. Applicable only to Android version 6.0 and later.
SIM Card Change*	Detect if the SIM card has been replaced.
System Integrity Protection	Detect the status of macOS's proprietary protection of system-owned files and directories against modifications by processes without a specific "entitlement", even when run by the root user or a user with root privileges.
Windows Automatic Update Status	Detect whether Windows Automatic Update has been activated. The compliance policy engine monitors the Action Center on the device for an Update solution. If your third-party solution does not display in the action center, it reports as not monitored.
Windows Copy Genuine Validation	Detect whether the copy of Windows currently running on the device is genuine.

* Only available for Telecom Advanced Users.

Compliance Policies Actions by Platform

The supported actions by platform, enforced by compliance policies, are as follows.

Table 4-1. Application

Compliance Policy Action	Android and Android Legacy	Apple iOS	Apple macOS	Chrome OS	QNX	Windows Rugged	Windows Desktop
Block/Remove Managed App	✓	✓	✓				✓
Block/Remove All Managed Apps	✓	✓	✓				✓

Table 4-2. Command

Compliance Policy Action	Android and Android Legacy	Apple iOS	Apple macOS	Chrome OS	QNX	Windows Rugged	Windows Desktop
Change Roaming Settings.		✓ (iOS 5+)					
Enterprise Wipe***	✓	✓	✓		✓		✓
Enterprise Reset	✓					✓	
OS Updates ****		✓					

Table 4-2. Command (continued)

Compliance Policy Action	Android and Android Legacy	Apple iOS	Apple macOS	Chrome OS	QNX	Windows Rugged	Windows Desktop
Request Device Check-In		✓					✓
Revoke Azure Tokens*.	✓	✓					

* **Revoke Azure Tokens** - This action affects all devices for a given user, disabling any app that relies upon the Azure token.

- This action requires 'Azure AD Integration' enabled and 'Use Azure AD For Identity Services' enabled, both found in **Settings > System > Enterprise Integration > Directory Services** under the **Server** tab.
- In order for Azure token revocation to work, **User Principal Name** is a mandatory user account field, so use one of the following methods to make sure it has the correct value.

  a Navigate to **Accounts > Users > List View** and edit the targeted user account's **User Principal Name** (under the **Advanced** tab) with the same email address they use to log into their Azure account.

  OR

  1. Navigate to **Groups & Settings > All Settings > System > Enterprise Integration > Directory Services**, select the **User** tab and select the **Advanced** drop down section.

  2. Scroll down to **User Principal Name** and enter the lookup value that corresponds to the email address they use to log into their Azure account.

Table 4-3. Email

Compliance Policy Action	Android and Android Legacy	Apple iOS	Apple macOS	Chrome OS	QNX	Windows Rugged	Windows Desktop
Block Email	✓	✓					

Table 4-4. Notify

Compliance Policy Action	Android and Android Legacy	Apple iOS	Apple macOS	Chrome OS	QNX	Windows Rugged	Windows Desktop
Send Email to User**.	✓	✓	✓	✓		✓	✓
Send SMS to Device.	✓	✓					✓
Send Push Notification to Device.	✓	✓	✓	✓			✓
Send Email to Administrator.	✓	✓	✓		✓	✓	✓

Table 4-5. Profile

Compliance Policy Action	Android and Android Legacy	Apple iOS	Apple macOS	Chrome OS	QNX	Windows Rugged	Windows Desktop
Install Compliance Profiles	✓	✓	✓				✓
Block/Remove Profile	✓	✓	✓				✓
Block/Remove Profile Type	✓	✓	✓				
Block/Remove All Profiles***	✓	✓	✓				✓

** Includes option to CC the user's manager.

*** These actions prevent the delivery of profiles until the device reports back a compliant status.

**** The OS update action is available to devices with iOS versions 9 through 10.2.1 if they are supervised and DEP-enrolled. Devices with iOS 10.3 and later need only be supervised.

Add a Compliance Policy

Adding a compliance policy is a process comprising of four segments: Rules, Actions, Assignment, and Summary. Workspace ONE UEM powered by AirWatch bases all platform-specific options on the initial platform choice, so the console never presents an option that your device cannot use.

Note Windows Rugged compliance is only supported on Motorola devices (Enterprise Reset action enforces compliance).

Configure the compliance engine with profiles and automated escalations by completing the Compliance Policy tabs.

Procedure

1 Navigate to **Devices > Compliance Policies > List View** and select **Add**.

2 Select a platform from the **Add Compliance Policy** page on which to base your compliance policy.

3 Detect conditions by configuring the **Rules** tab by first matching **Any** or **All** of the rules.

- **Add Rule** – Select to add additional rules and parameters. For more information, see Compliance Policy Rules by Platform and Compliance Policy Rules Descriptions.
- **Previous** and **Next** – Select to go back to the previous step or advance to the next step, Actions, respectively.

4 Define the consequences of noncompliance within of your policy by completing the **Actions** tab.

Available actions are platform-dependent. Some actions prohibit the receipt of profiles until a compliant status is reported back. For more information, see Compliance Policies Actions by Platform.

5 Specify **Actions** and **Escalations** that occur.

An **Escalation** is simply an automatic action taken when the prior **Action** does not cause the user to take corrective steps to make their device compliant.

Select the options and types of actions to perform.

Table 4-6. Actions and Escalations

Setting	Description
Mark as Not Compliant check box	Enables you to perform actions on a device without marking it as non-compliant. The compliance engine accomplishes this task by observing the following rules. ■ The Mark as Not Compliant check box is enabled (checked) by default for each newly added Action. ■ If one action has the Mark as Not Compliant option enabled (checked), then all subsequent actions and escalations are also marked as not compliant (checked). These subsequent check boxes cannot be edited. ■ If an action has the Mark as Not Compliant option disabled (not checked), then the next action/escalation has the option enabled by default (checked). This check box can be edited. ■ If an action/escalation has the Mark as Not Compliant option disabled and the device does not pass the compliance rule, the device is officially 'compliant'. The prescribed action is then run. ■ A device's status remains 'compliant' unless it encounters an action/escalation with the Mark as Not Compliant check box enabled. Only then is the device considered non-compliant.
Application	Block or remove a managed application. You can enforce application compliance by establishing an allowlist, denylist, or required list of applications.
Command	Initiate a device check-in or run an enterprise wipe.
Email	Block the user from email. If you are using Mobile Email Management together with the Email compliance engine, then the 'Block Email' action applies. Access this option by navigating to **Email > Compliance Policies > Email Policies**. This action lets you use Device Compliance policies such as denylisted apps with any Email compliance engine policies you configure. With this Action selected, email compliance is triggered with a single device policy update if the device falls out of compliance.

Table 4-6. Actions and Escalations (continued)

Setting	Description
Notify	Notify someone about the compliance violation. You have the following options to send a notification. ■ Send Email to User. ■ Send SMS* to Device. ■ Send Push Notification to Device. ■ Send Email to Administrator. Multiple emails can be inserted into the accompanying **CC** text box provided they are separated by commas. You can also CC the user's manager by inserting a lookup value; click the plus sign next to the CC text box and choose {UsersManager} from the drop-down menu. For details, see Chapter 12 Lookup Values. For all Notify actions, you have the option of using a message template. Use this option by deselecting the **Default Template** check box, which displays a drop-down menu enabling you to select a message template. There is also a link that, when selected, displays the **Message Template** page in a new window. This page enables you to create your own message template. * In order for SMS notifications to work with your device fleet, you must have an account with a 3rd party Gateway provider and configure the Gateway settings. Navigate to **Groups & Settings > All Settings > System > Enterprise Integration > SMS** and complete the options described in SMS Settings.
Profile	Install, Remove, or Block a specific Device Profile, Device Profile type, or Compliance Profile. Compliance profiles are created and saved in the same manner as Auto and Optional device profiles. Navigate to **Resources > Profiles & Baselines > Profiles**, then select **Add**, then **Add Profile**. Select a platform, and in the **General** profile tab, select 'Compliance' in the **Assignment Type** drop-down setting. Compliance profiles are applied in the **Actions** tab of the **Add a Compliance Policy** page to be used when an end user violates a compliance policy. Select **Install Compliance Profile** from the drop-down and then select the previously saved compliance profile.

Table 4-7. Escalations Only

Setting	Description
Add Escalation button	Creates an escalation. When adding escalations, it is a best practice to increase the security of actions with each additional escalation.
After time Interval…	You can delay the escalation by minutes, hours, or days.
…**Perform the following actions**	**Repeat** – Enable this check box to repeat the escalation a selected number of times before the next scheduled action begins.

For macOS, you can only perform the following actions:

- Device Wipe
- Send Email to Administrator
- Enterprise Wipe
- Block/Remove Profile

- Send Email to User
- Block/Remove Profile Type
- Send Push Notification to Device
- Block/Remove All Profiles

6 Determine which devices are subjected to (and excluded from) the compliance policy by completing the **Assignment** and **Summary** tabs of the Add Compliance Policy page.Name, finalize, and activate the policy with the Summary tab.

Setting	Description
Managed By	Select the organization group by which this compliance policy is managed.
Assigned Groups	Assign to this policy one or more groups. For more information, see the topic Assignment Groups.
Exclusions	If you want to exclude groups, select **Yes**. Next, select from the available listing of groups in the **Excluded Groups** text box. For more information, see the topic, **Exclude Groups in Profiles and Policies**.
View Device Assignment button	See a listing of devices affected by this compliance policy assignment.

While Platform is a criterion within a smart group, the platform configured in the device profile or compliance policy always takes precedence over the smart group's platform. For instance, if a device profile is created for the iOS platform, the profile is only assigned to iOS devices even if the smart group includes Android devices.

7 After you determine the Assignment of this policy, select **Next**.

The **Summary** tab displays.

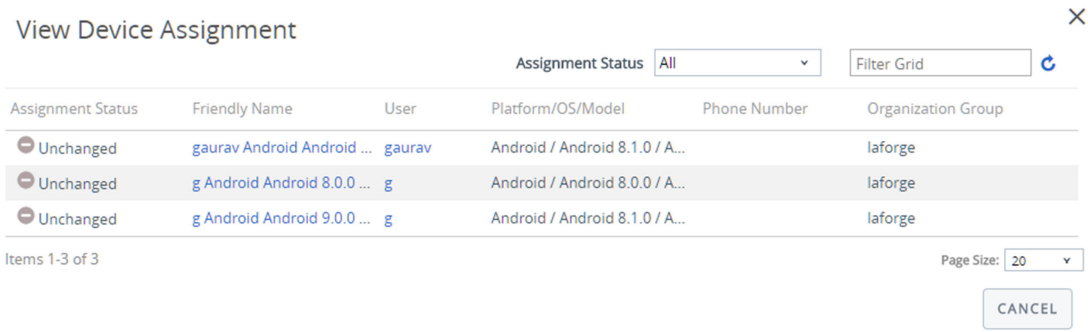
8 Provide a **Name** and a useful **Description** of the compliance policy.

9 Select one of the following options.

- **Finish** – Save your compliance policy without activating it to the assigned devices.
- **Finish and Activate** – Save and apply the policy to all affected devices.

View Device Assignment, Compliance Policy

Select **View Device Assignment** on the **Assignment** tab while configuring a compliance policy to display the **View Device Assignment** page. This page confirms devices affected (or unaffected) by the compliance policy assigned.



The **Assignment Status** column displays the following entries for the devices that appear in the listing.

- **Added** – The compliance policy has been added to the listed device.
- **Removed** – The compliance policy has been removed from the device.
- **Unchanged** – The device remains unaffected by the changes made to the compliance policy.

Select **Publish** to finalize the changes and, if necessary, republish any compliance policy.

Compromised Device Detection with Health Attestation

Health Attestation scans devices during startup for failures in device integrity. Use Health Attestation to detect compromised Windows Desktop devices while managed under Workspace ONE UEM powered by AirWatch.

In both BYOD and Corporate-Owned device deployments, it is important to know that devices are healthy when accessing corporate resources. The Windows Health Attestation Service accesses device boot information from the cloud through secure communications. This information is measured and checked against related data points to ensure that the device booted up as intended and is not victim to security vulnerabilities or threat. Measurements include Secure Boot, Code Integrity, BitLocker, and Boot Manager.

Workspace ONE UEM enables you to configure the Windows Health Attestation service to ensure device compliance. If any of the enabled checks fail, the Workspace ONE UEM compliance policy engine applies security measures based on the configured compliance policy. This functionality allows you to keep your enterprise data secure from compromised devices. Since Workspace ONE UEM pulls the necessary information from the device hardware and not the OS, compromised devices are detected even when the OS kernel is compromised.

Configure the Health Attestation for Windows Desktop Compliance Policies

Keep your devices secured by using Windows Health Attestation Service for compromised device detection. This service allows Workspace ONE UEM to check the device integrity during startup and take corrective actions.

Procedure

1 Navigate to **Groups & Settings > All Settings > Devices & Users > Windows > Windows Desktop > Windows Health Attestation**.

2 (Optional) Select **Use Custom Server** if you are using a custom on-premises server running Health Attestation. Enter the **Server URL**.

3 Configure the Health Attestation settings:

Settings	Descriptions
Use Custom Server	Select to configure a custom server for Health Attestation. This option requires a server running Windows Server 2016 or newer. Enabling this option displays the Server URL field.
Server URL	Enter the URL for your custom Health Attestation server.
Secure Boot Disabled	Enable to flag compromised device status when Secure Boot is disabled on the device. Secure Boot forces the system to boot to a factory trusted state. When Secure Boot is enabled, the core components used to boot the machine must have the correct cryptographic signatures that the OEM trusts. The UEFI firmware verifies the trust before it allows the machine to start. Secure boot prevents the startup if any it detects any tampered files.
Attestation Identity Key (AIK) Not Present	Enable to flag compromised device status when the AIK is not present on the device. Attestation Identity Key (AIK) is present on a device, it indicates that the device has an endorsement key (EK) certificate. It can be trusted more than a device that does not have an EK certificate.
Data Execution Prevention (DEP) Policy Disabled	Enable to flag compromised device status when the DEP is disabled on the device. The Data Execution Prevention (DEP) Policy is a memory protection feature built into the system level of the OS. The policy prevents running code from data pages such as the default heap, stacks, and memory pools. DEP is enforced by both hardware and software.
BitLocker Disabled	Enable to flag compromised device status when BitLocker encryption is disabled on the device.
Code Integrity Check Disabled	Enable to flag compromised device status when the code integrity check is disabled on the device. Code integrity is a feature that validates the integrity of a driver or system file each time it is loaded into memory. Code integrity checks for unsigned drivers or system files before they load into the kernel. The check also scans for users with administrative privileges running system files modified by malicious software.

Settings	Descriptions
Early Launch Anti-Malware Disabled	Enable to flag compromised device status when the early launch anti-malware is disabled on the device. Early launch anti-malware (ELAM) provides protection for the computers in your network when they start up and before third-party drivers initialize.
Code Integrity Version Check	Enable to flag compromised device status when the code integrity version check fails.
Boot Manager Version Check	Enable to flag compromised device status when the boot manager version check fails.
Boot App Security Version Number Check	Enable to flag compromised device status when the boot app security version number does not meet the entered number.
Boot Manager Security Version Number Check	Enable to flag compromised device status when the boot manager security version number does not meet the entered number.
Advanced Settings	Enable to configure advance settings in the Software Version Identifiers section.

4 Select **Save**.

Configure Health Attestation for Windows Phone Compliance Policies

Keep your devices secured by using Windows Health Attestation Service for compromised device detection. This service allows AirWatch to monitor the device integrity during boot and take corrective actions.

Compromised status compliance policy is applicable to Windows 10 Mobile devices with a Trusted Platform Module (TPM) 1.2 or later.

Procedure

1 Navigate to **Groups & Settings > All Settings > Devices & Users > Windows > Windows Phone > Windows Health Attestation**.

2 (Optional) Select **Use Custom Server** if you are using a custom on-premises server running Health Attestation. Enter the **Server URL**.

3 Configure the Health Attestation settings:

Table 4-8. Compromised Status Definition

Settings	Descriptions
Use Custom Server	Select to configure a custom server for Health Attestation. This option requires a server running Windows Server 2016 or newer. Enabling this option displays the **Server URL** field.
Server URL	Enter the URL for your custom Health Attestation server.

Table 4-8. Compromised Status Definition (continued)

Settings	Descriptions
Secure Boot Disabled	Enable to flag compromised device status when Secure Boot is disabled on the device. Secure Boot forces the system to boot to a factory trusted state. When Secure Boot is enabled, the core components used to boot the machine must have the correct cryptographic signatures that the OEM trusts. The UEFI firmware verifies the trust before it allows the machine to start. Secure boot prevents the startup if any it detects any tampered files.
Attestation Identity Key (AIK) Not Present	Enable to flag compromised device status when the AIK is not present on the device. Attestation Identity Key (AIK) is present on a device, it indicates that the device has an endorsement key (EK) certificate. It can be trusted more than a device that does not have an EK certificate.
Data Execution Prevention (DEP) Policy Disabled	Enable to flag compromised device status when the DEP is disabled on the device. The Data Execution Prevention (DEP) Policy is a memory protection feature built into the system level of the OS. The policy prevents running code from data pages such as the default heap, stacks, and memory pools. DEP is enforced by both hardware and software.
BitLocker Disabled	Enable to flag compromised device status when BitLocker encryption is disabled on the device.
Code Integrity Check Disabled	Enable to flag compromised device status when the code integrity check is disabled on the device. Code integrity is a feature that validates the integrity of a driver or system file each time it is loaded into memory. Code integrity checks for unsigned drivers or system files before they load into the kernel. The check also scans for users with administrative privileges running system files modified by malicious software.
Early Launch Anti-Malware Disabled	Enable to flag compromised device status when the early launch anti-malware is disabled on the device. Early launch anti-malware (ELAM) provides protection for the computers in your network when they start up and before third-party drivers initialize.
Code Integrity Version Check	Enable to flag compromised device status when the code integrity version check fails.
Boot Manager Version Check	Enable to flag compromised device status when the boot manager version check fails.
Boot App Security Version Number Check	Enable to flag compromised device status when the boot app security version number does not meet the entered number.
Boot Manager Security Version Number Check	Enable to flag compromised device status when the boot manager security version number does not meet the entered number.
Advanced Settings	Enable to configure advance settings in the Software Version Identifiers section.

What to do next

For more information, see the Microsoft TechNet article on Health Attestation.

Custom Attributes

5

Custom attributes in Workspace ONE UEM enable you to extract specific values from a managed device (for example IMEI, location, among many others) and use it as assignment criteria for products. You can also configure a 3rd party application to create custom attributes and display them on the launcher.

What Is A Custom Attribute?

A custom attribute is a placeholder for additional device information collected by Workspace ONE Intelligent Hub or by a third party application. This placeholder can be used in many different ways.

- It can be used to assign content such as provisioned products.
  - *...for example, you can provision product XYZ to only devices that are checked out and in the field.*
- It can provide information to the admin on the UEM console or to the end user on the device.
  - *...for example, a delivery driver can view an in-house developed app to determine their next stop, furnished by a custom attribute that collects the location of the device*.
- It can be used to move newly enrolled devices to a specific organization group.
  - *...for example, you can move all newly enrolled devices whose model number equals Zebra VC80 to an organization group that is designed to serve that specific model.*

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

For details about available options regarding device assignment rules based on custom attributes, see Enable Device Assignments.

Create a Custom Attribute

Create a custom attribute and values to push to devices in Workspace ONE UEM. You can create assignment rules for products to provision based on these attributes and their values.

1 Navigate to **Devices > Provisioning > Custom Attributes**.

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. The application can be a third-party app or Workspace ONE Intelligent Hub.

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.

   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.

   You do not need to enter all possible values of the attribute. The list of attributes entered here is not a requirement or constraint on what values the device *can* report. Instead, enter only expected values used to pre-define organization group assignment rules.

12 Select **Save**.

Custom Attributes Database

Custom attributes are stored as XML files and in the Workspace ONE Intelligent Hub database, each stored on the device. 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 Workspace ONE Intelligent Hub 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.

Note Custom Attribute values cannot return the following special characters: **/ \ " * : ; < > ?** |. If a script returns a value which contains these characters, the value is not reported on the console. Trim these characters from the script's output.

Assign Organization Groups Using Custom Attributes

Configure rules that control how devices are assigned to organization groups following enrollment in Workspace ONE UEM. You are limited to one custom attribute assignment rule per organization group (OG).

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**.

For details about available options regarding device assignment rules, see Enable Device Assignments.

5 Select **Save**.

6 Navigate to **Devices > Provisioning > Custom Attributes > Add > Add Attribute** and create a custom attribute if you have not already done so.

See the section on this page entitled **Create a Custom Attribute**.

7 Navigate to **Devices > 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
Attribute/ Application	This custom attribute determines device assignment. Select from among Device Model, Serial Number, and any custom attribute or XML file that is available in the customer OG you are in.
Operator	This operator compares the **Attribute** to the **Value** to determine if the device qualifies for the product. When using more than one Operator in a rule, you must include a **Logical Operator** between each **Operator**. **Note** When making an assignment rule, comparisons using the less than (<) and greater than (>) operators (and their variants) can only be used to compare numerical values including integers. The exception is when you are comparing OEM build versions, you can apply < and > operators on non-numerical ASCII strings. An example is when an OEM update filename includes hyphens, periods, and other characters together with numbers. Such assignment rules must identify a device manufacturer in the rule logic and that comparison is deemed accurate when the format on the device matches the one specified on the server.
Value	All values from all applicable devices are listed here for the **Attribute** selected for the rule.
Add Logical Operator	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.

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

Custom Attributes Importing

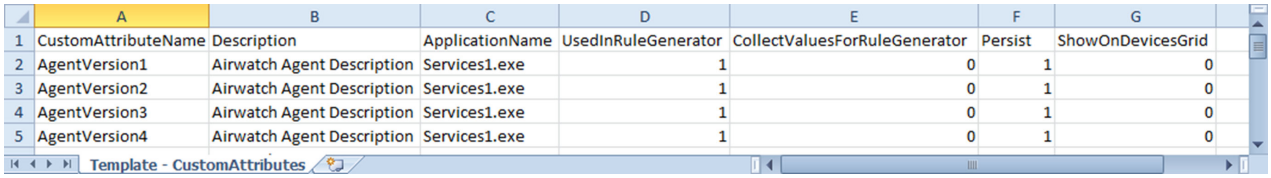
The custom attribute batch import feature in Workspace ONE UEM allows you to load custom attributes and corresponding values into the system in bulk. In the templates provided, each column corresponds to one custom attribute and each row corresponds to their different parameters.

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

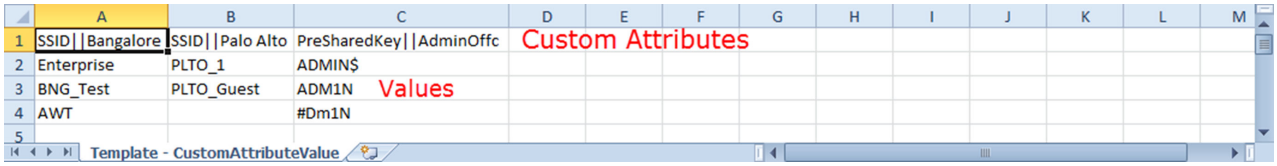
- Custom Attributes Template – Allows you to define a custom attribute and its settings.



	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

Template - CustomAttributes

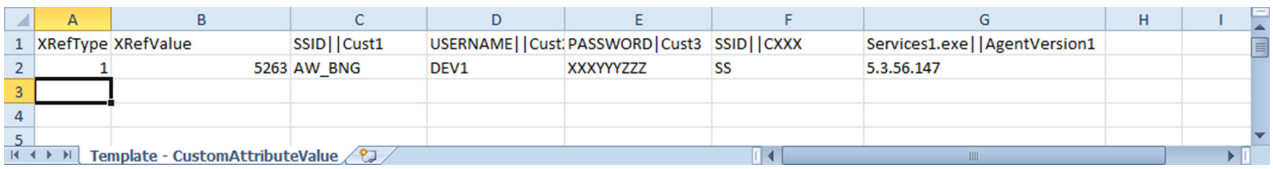
- Custom Attribute Values Template – Allows you to define the values of predefined custom attributes.



	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$										
3	BNG_Test	PLTO_Guest	ADM1N	Values									
4	AWT		#Dm1N										
5													

Template - CustomAttributeValue

- 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||Cust2	PASSWORD|Cust3	SSID||CXXX	Services1.exe||AgentVersion1		
2	1	5263	AW_BNG	DEV1	XXXYYYZZZ	SS	5.3.56.147		
3									
4									
5									

Template - CustomAttributeValue

  a DeviceID (Workspace ONE UEM assigned DeviceID when the device enrolls)

  b Serial Number

  c UDID

d MAC Address

e IMEI Number

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

Device Actions

6

View a detailed description of each action that can be run on a device, remotely from the Workspace ONE UEM console. This list is platform-agnostic.

Navigate to **Devices > List View**, select one or more devices by selecting the check box to the left of each device. Then select the **More Actions** button to see which actions you can perform on your selected device or devices. For more information, see Bulk Actions in Device List View.

- **Add Tag** – Assign a customizable tag to a device, which can be used to identify a special device in your fleet.
- **Apps (Query)** – Send an MDM query command to the device to return a list of installed applications.
- **Books (Query)** – Send a query command to the device to return a list of installed books.
- **Certificates (Query)** – Send an MDM query command to the device to return a list of installed certificates.
- **Change Device Passcode** – Replace any existing device passcode used to access the selected device with a new passcode. The new passcode is displayed on the Change Passcode screen.
  - Take note of the passcode *before* clicking the **Change Passcode** button.
  - Select the **Change Passcode** button to proceed.

    - You can close the window or select **Cancel** and check back later, meaning: if you are unable to notate the passcode or relay the passcode to the end user, you can re-initiate a Change Device Passcode action at a later time.
- **Change Organization Group** – Change the device's home organization group to another existing OG. Includes an option to select a static or dynamic OG.
    - If you want to change the organization group for multiple devices at a time, you must select devices for the bulk action using the Block selection method (using the shift-key) instead of the Global check box (next to the Last Seen column heading in the device list view).
- **Change Ownership** – Change the Ownership setting for a device, where applicable. Choices include Corporate-Dedicated, Corporate-Shared, Employee Owned and Undefined.
- **Clear Activation Lock** – Clear the Activation Lock on an iOS device. With the Activation Lock enabled, the user requires an Apple ID and password before taking the following actions: disabling Find My iPhone, factory wipe, and reactivate to use the device.
- **Clear Passcode (Container)** – Clear the container-specific passcode. To be used in situations where the user has forgotten their device's container passcode.
- **Clear Passcode (Device)** – Clear the device passcode. To be used in situations where the user has forgotten their device's passcode.
- **Clear Passcode (Restrictions Setting)** – Clear the passcode command clears the login passcode on the device. The device needs to be supervised.
- **Delete Device** – Delete and unenroll a device from the console. Sends the enterprise wipe command to the device that gets wiped on the next check-in and marks the device as **Delete In Progress** on the console. If the wipe protection is turned off on the device, the issued command immediately performs an enterprise wipe and removes the device representation in the console.
- **Device Information (Query)** – Send an MDM query command to the device to return information on the device such as friendly name, platform, model, organization group, operating system version, and ownership status.
- **Device Wipe** – Send an MDM command to wipe a device clear of all data and operating system. This action cannot be undone.
    - iOS Device Wipe Considerations
        - For iOS 11 and below devices, the device wipe command also wipes the Apple SIM data associated with the devices.
        - For iOS 11+ devices, you can preserve the Apple SIM data plan (if existed on the devices). Select the **Preserve Data Plan** check box on the Device Wipe page before sending the device wipe command.

- For iOS 11.3+ devices, you have an extra option to skip the **Proximity Setup** screen while sending down the device wipe command. When the option is enabled, the Proximity Setup screen is skipped in the Setup Assistant, preventing the device user from seeing the Proximity Set up option.

- For Windows Desktop Devices, you can select the type of device wipe.
  - **Wipe** - This option wipes the device of all content.
  - **Wipe Protected** - This option is similar a normal device wipe but the device end user cannot circumvent the action. The Wipe Protected command keeps trying to reset the device until it is successful. In some device configurations, this command can leave the device unable to start.

    - **Wipe and Persist Provisioning Data** - This option wipes the device but specifies that provisioning data be backed up to a persistent location. After the wipe runs, the provisioning data is restored and applied to the device. The provisioning folder is saved. You can find the folder by navigating on the device to `%ProgramData%\Microsoft\Provisioning`.

- **Edit Device** – Edit device information such as **Friendly Name**, **Asset Number**, **Device Ownership**, **Device Group Device Category**.
- **Enable/Disable Lost Mode** – Use this device action to lock a device and send a message, phone number, or text to the lock screen. The device end user cannot disable Lost Mode. When an admin deactivates Lost Mode, the device returns to normal functionality. Users receive a message that tells them that the location of the device was shared. (iOS 9.3 + Supervised)
    - **Request Device Location** – Query a device when in Lost Mode and then use the Location tab to find the device. (iOS 9.3 + Supervised)
- **Enroll** – Send a message to the device user to enroll their device. You can optionally use a message template that can include enrollment information such as step-by-step instructions and helpful links. This action is only available on unenrolled devices.
- **Enterprise Reset** – Enterprise Reset a device to factory settings, keeping only the Workspace ONE UEM enrollment.
    - **Windows Desktop Only:** Enterprise Reset restores a device to a Ready to Work state when a device is corrupted or has malfunctioning applications. It reinstalls the Windows OS while preserving user data, user accounts, and managed applications. The device will resync auto-deployed enterprise settings, policies, and applications after resync while remaining managed by Workspace ONE.
- **Enterprise Wipe** – Enterprise Wipe a device to unenroll and remove all managed enterprise resources including applications and profiles. This action cannot be undone and re-enrollment is required before Workspace ONE UEM can manage this device again. This device action includes options to prevent future re-enrollment and a **Note Description** text box for you to add information about the action.
    - Enterprise Wipe is not supported for cloud domain-joined devices.
- **File Manager** – Start a File Manager within the UEM console that enables you to view remotely a device's content, add folders, conduct searches, and upload files.
- **Find Device** – Send a text message to the applicable Workspace ONE UEM application together with an audible sound designed to help the user locate a misplaced device. The audible sound options include playing the sound a configurable number of times and the length of the gap, in seconds, between sounds.
- **Force BIOS Password Reset** – Force the device to reset the BIOS password to a new auto-generated password.

- **Workspace ONE Intelligent Hub Query** – Send a query command to the Workspace ONE Intelligent Hub on the device to ensure it has been installed and is functioning normally.
- **iOS Update** – Push an operating system update to one or more iOS devices. Applicable only to supervised, DEP-enrolled devices with iOS version 9 or greater.
- **Location** – Reveal a device's location by showing it on a map using its GPS capability enabled on the macOS Workspace ONE Intelligent Hub. This device action requires user approval to enable the functionality in macOS System Preferences.
  - If you want to display the location for multiple devices at a time, you must select devices for the bulk action using the Block selection method (using the shift-key) instead of the Global check box (next to the Last Seen column heading in the device list view).
- **Lock Device** – Send an MDM command to lock a selected device, rendering it unusable until it is unlocked.
- **Lock SSO** – Lock the device user out of Workspace ONE UEM Container and all participating applications.
- **Managed Settings** – Enable or disable voice roaming, data roaming, and personal hotspots.
- **Manage Tags** – View the currently assigned device tags and see a list of tags available to be assigned with the Manage Tags screen.
  - If you want to Manage Tags for multiple devices at a time, you must select devices for the bulk action using the Block selection method (using the shift-key) instead of the Global check box (next to the Last Seen column heading in the device list view).
- **Mark Do Not Disturb** – Mark the device not to be disturbed, preventing it from receiving messages, emails, profiles, and any other type of incoming interaction. Only those devices that are actively Marked Do Not Disturb have the action **Clear Do Not Disturb** available, which removes the restrictions.
- **Override Job Log Level** – Override the currently specified level of job event logging on the selected device. This action sets the logging verbosity of Jobs pushed through Product

Provisioning and overrides the current log level configured in Android Hub Settings. Job Log Level Override can be cleared by selecting the drop-down menu item **Reset to Default** on the action screen. You can also change the Job Log Level under the Product Provisioning category in Android Hub Settings.

- **Profiles (Query)** – Send an MDM query command to the device to return a list of installed device profiles.
- **Provision Now** – Provision products to a device. Provisioning is the ability to create an ordered installation of files, actions, profiles, and applications into a single product that can be pushed to devices.
- **Query All** – Send a query command to the device to return a list of installed applications (including Workspace ONE Intelligent Hub, where applicable), books, certificates, device information, profiles, and security measures.
- **Reboot Device** – Reboot a device remotely, reproducing the effect of powering it off and on again.
- **Registry Manager** – Start a Registry Manager within the UEM console that enables you to view remotely a device's OS registry, add keys, conduct searches and add properties.
- **Remote Assist** – Take control of a supported device remotely using this action, which offers platform-specific tools that allow you to perform support and troubleshooting on the device. Android devices require Remote Control Service to be installed on the device.
- **Remote Management** – Take control of a supported device remotely using this action, which starts a console application that enables you to perform support and troubleshoot on the device. Android devices require Remote Control Service to be installed on the device.
- **Remote View** – Enable an active stream of the device's output to a destination of your choice, allowing you to see what the user sees as they operate the device. The destination parameters include IP address, port, audio port, password, and scan time.
- **Rename Device** – Change the device's Friendly Name within the UEM console.
- **Request Device Log** – Request the debug log for the selected device, after which you can view the log by selecting the **More** tab and selecting **Attachments > Documents**. You cannot view the log within the Workspace ONE UEM console. The log is delivered as a ZIP file that can be used to troubleshoot and provide support.

  When you request a log, you can select to receive the logs from the **System** or the **Hub**. **System** provides system-level logs. **Hub** provides logs from the multiple agents running on the device.

Android Only: you can retrieve detailed logs from corporate-owned Android devices and view them in the console to resolve issues on the device quickly.

- **Request Device Check-In** – Request that the selected device check itself in to the UEM console. This action updates the **Last Seen** column status.
- **Restart Workspace ONE Intelligent Hub** – Restart the Workspace ONE Intelligent Hub. This option is used during troubleshooting for when the enrollment process or submodule installation process is interrupted.
- **Security (Query)** – Send an MDM query command to the device to return the list of active security measures (device manager, encryption, passcode, certificates, and so on).
- **Send Message** – Send a message to the user of the selected device. Select between **Email**, **Push Notification** (through AirWatch Cloud Messaging), and **SMS**. Push notification requires Airwatch applications like Hub, Boxer etc which must have been launched at least once.
- **Start AirPlay** – Stream audiovisual content from the device to an AirPlay mirror destination. The MAC address (format "xx:xx:xx:xx:xx:xx" with no case-sensitive) of the destination is required. A passcode can also be specified if necessary. Scan Time defines the number of seconds (10-300) to spend searching for the destination. Requires macOS 10.10 or greater.
- **Start/Stop AWCM** – Start/Stop the Cloud Messaging service for the selected device. VMware AirWatch Cloud Messaging (AWCM) streamlines the delivery of messages and commands from the Admin Console. The AWCM eliminates the need for end users to access the public Internet or use consumer accounts such as Google IDs.
- **Sync Device** – Synchronize the selected device with the UEM console, aligning its **Last Seen** status.
- **Task Manager** – Run a Task Manager within the UEM console that enables you to view remotely a device's currently running tasks, including task **Name**, **Process ID**, and applicable **Actions** you can take.
- **View BIOS Password** – View the BIOS password for the device that was auto-generated by the Workspace ONE UEM console. You see the **Last Password Applied** and the **Last Password Submitted**.
- **View Manifest** – View the device's **Package Manifest** in XML format from the UEM console. The manifest on Windows Rugged devices lists metadata for widgets and applications.
- **Warm Boot** – Initiate a restart of the operating system without performing a power-on self-test (POST).

Device Assignments

7

Device Assignments enable you to move devices across organization groups (OG) and user names based on the network Internet protocol (IP) address range or custom attributes. It is an alternative to organizing content by user groups in Workspace ONE UEM.

Instead of admins manually moving devices between OGs, you can direct the console to move devices automatically when it connects to Wi-Fi that you define. You can also move devices based on custom attribute rules that you define.

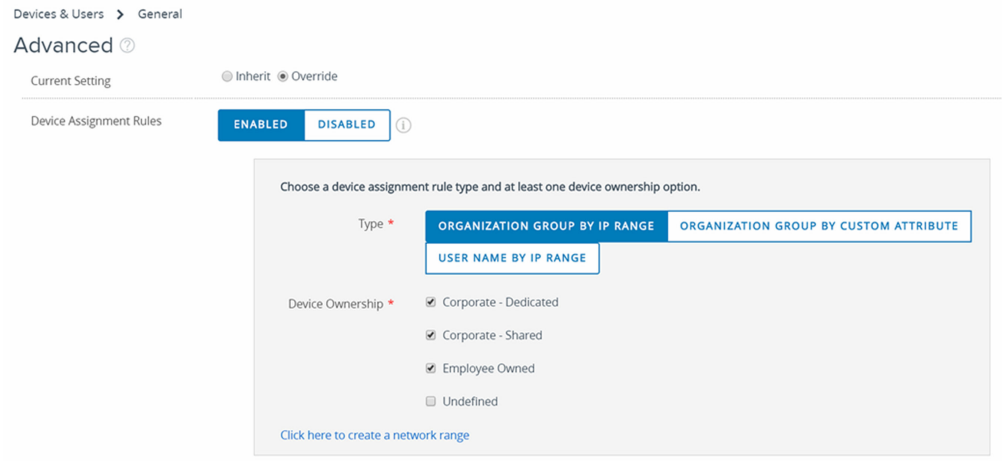
A typical use case for device assignments is a user who regularly changes roles and requires specialized profiles and applications for each role.

You must choose between implementing **User Groups** and **Device Assignments** to move devices since Workspace ONE UEM does not support both functions on the same device.

Enable Device Assignments

Before you can move devices across organization groups (OG) and user names based on an Internet protocol (IP) or custom attribute, you must enable device assignments in Workspace ONE UEM. Device assignments can only be configured at a child organization group.

1 Navigate to **Groups & Settings > All Settings > Devices & Users > General > Advanced** and select **Override** or **Inherit** for the **Current Setting** according to your needs.



2 Select **Enabled** in the **Device Assignment Rules** setting.

3 Choose the management **Type**. Choose from the following.

- **Organization Group By IP Range** – Moves the device to a specified OG when the device leaves one Wi-Fi network range and enters another. This move triggers the automatic push of profiles, apps, policies, and products.
- **Organization Group By Custom Attribute** – Moves the device to an organization group based on 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.

  - When **Organization Group By Custom Attribute** is enabled, a link appears entitled **Click Here To Create Custom Attribute Based Assignment Rule**. When selected, this link opens another tab in your browser. This tab displays the **Custom Attribute Assignment Rules** page, enabling you to create your own attribute assignment rules.
- **User name By IP Range** – When a device exits one network and enters another, the device changes user names instead of moving to another OG. This user name change triggers the same push of profiles, apps, policies, and products as an OG change does. This option is for customers with a limited ability to create organization groups, providing an alternate way to take advantage of the device assignment feature.

  Important If you want to change the assignment **Type** on an existing assignment configuration, you must delete all existing defined ranges. Remove IP Range assignments by navigating to **Groups & Settings > Groups > Organization Groups > Network Ranges**. Remove custom attribute assignments by navigating to **Devices > Provisioning > Custom Attributes > Custom Attribute Assignment Rules**.

4 Choose the **Device Ownership** options. Only devices with the selected ownership types are assigned. Choose from the following.

- Corporate – Dedicated
- Corporate – Shared
- Employee Owned
- Undefined

5 You can add a network range by selecting the link, **Click here to create a network range**.

You can alternatively visit this page by navigating to **Groups & Settings > Groups > Organization Groups > Network Ranges**. The Network Ranges settings selection is only visible if **Device Assignments** has been enabled for the Organization Group you are in when you visit this location.

When selected, the **Network Ranges** page is displayed.

6 Select **Save** once all the options are set.

Define Device Assignment Rule or Network Range

When your device connects to Wi-Fi while managed by Workspace ONE UEM, the device authenticates and automatically installs profiles, apps, policies, and product provisions specific to the OG that you select.

You can also define rules based on custom attributes. When a device enrolls with an assigned attribute, the rule assigns the device to the configured organization group. The device can also be assigned in the case where the device receives a product provision containing a qualifying custom attribute.

Device assignments can only be configured at a child organization group.

1 Navigate to **Groups & Settings > Groups > Organization Groups > Network Ranges**.

The Network Ranges option is not visible until you enable device assignments. So if you cannot find 'Network Ranges' in the Organization Groups navigation path, see the section above entitled **Enable Device Assignments**.

2 To add a single Internet protocol (IP) address range, select **Add Network Range**. In the **Add/ Edit Network Range** page, complete the following settings and then select **Save**.

Table 7-1. Add Network Range

Setting	Description
Start IP Address	Enter the top end of the network range.
End IP Address	Enter the bottom end of the network range.
Organization Group Name	Enter the OG name to which devices move when the network range is entered. This setting is only visible if the network assignment **Type** is 'Organization Group By IP Range.'
User name	Enter the user name to whom devices register when the network range is entered. This setting is only visible if the network assignment **Type** is 'User name by IP Range.'
Description	Optionally, add a helpful description of the network range.

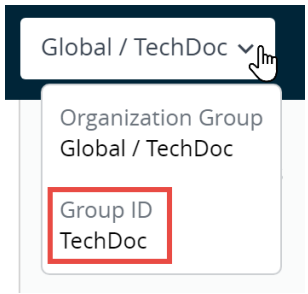
Overlapping network ranges results in the message, "Save Failed, Network Range exists."

3 If you have several network ranges to add, you can optionally select **Batch Import** to save time.

a On the Batch Import page, select the **Download template for this batch type** link to view and download the bulk import template in CSV format.

b Open the CSV file. The CSV file features several columns corresponding to the options on the **Add Network Range** screen. Enter the organization Group ID in the "OrganisationGroup" column instead of organization group name.

Note You can identify the Group ID of any organization group by 1) moving to the OG you want to identify and 2) hovering your pointer over the OG label which displays a popup that contains the Group ID.

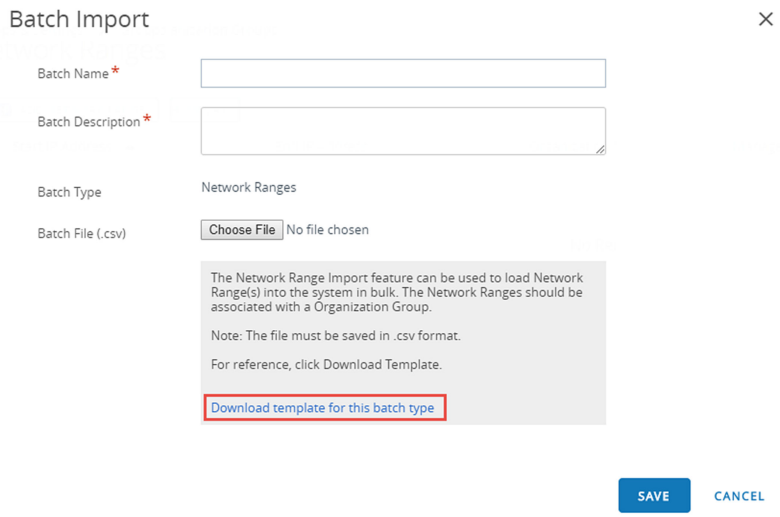


Note A CSV file (comma-separated values) is simply a text file whose extension has been changed from "TXT" to "CSV". It stores tabular data (text and numbers) in plain text. Each line or row of the file is a data record. Each record consists of one or more fields, separated by commas. It can be opened and edited with any text editor. It can also be opened and edited with Microsoft Excel.

c When you open the CSV template, notice that sample data has been added to each column in the template. The sample data is presented to inform you what kind of data is required and what format it must be in. Do not stray from the format presented by the sample data. Complete this template by filling in each of the required columns for each network range you want to add.

d Import the completed template using the **Batch Import** page.

e Select **Save**.



Device Details

8

You can see information for a single device and access user and device management actions quickly by viewing the Device Details page in Workspace ONE UEM.

Access Device Details by selecting a device friendly name from one of the available Dashboards, or by using the available search tools in the Workspace ONE UEM console. A **Friendly Name** is the label you assign to a device to help you differentiate it from devices of the same make and model.

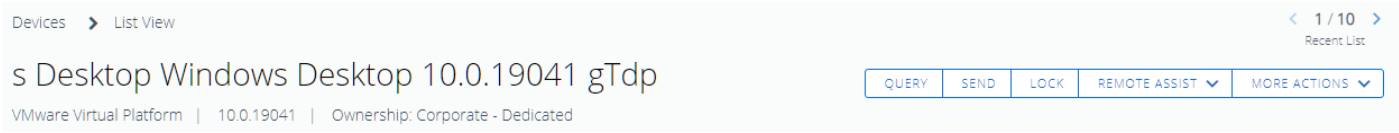
Main Page Major Sections

- **Notification Badges** – Displays the Compromised State, Compliance Violations, Enrollment Date, time Last Seen for the selected device, and GPS/Location Service Availability (for Android devices only).
- **Security** – Displays security settings such as which management software was used for enrollment, passcode status, and data protections.
  - If you enroll a device with the Browser Web app or Container app and later download and run the Workspace ONE Intelligent Hub app on the device, the 'Managed by Container' indicator changes to 'Hub Registered' to reflect the presence of the Workspace ONE Intelligent Hub.
- **User Info** – Displays basic user information including full name and email.
- **Device Info** – Displays device details such as organization group, location, smart groups, serial number, UDID, asset number, power status, storage capacity, physical memory, warranty information, last reboot time (Android only), and device tags in alphabetical order. Battery health applies to Zebra Android devices only.
- **Profiles** – Displays all profiles such as installed (active), assigned (inactive), and unmanaged (sideloaded).
- **Apps** – Displays all installed apps, both automatic apps and on-demand apps.
- **Content** – Displays content marked as 'Required' by the administrator in the Workspace ONE UEM Managed Repository and in the admin repository.
- **Certifications** – Displays all installed certificates, including certifications near their expiration date.

- **Admin Applications** – Displays the installed Workspace ONE Intelligent Hub information including version number.
- **Zebra Battery Information** (for Zebra Android devices only) – Displays detailed battery information including battery health, manufacture date, serial number, and part number.

Device Details Dashboard

The dashboard displays basic device information such as the device friendly name. Other detailed information includes device type, device model, OS version number, ownership type, device action button cluster, and Recent List indicator.



Selecting the arrow buttons in the **Recent List** indicator changes the selected device based on its position in the filtered **List View**.

You can also initiate a **Remote Assist** session on qualifying devices. For details, see Remote Assist.

Menu Tabs

Menu Tab	Description
Summary	View general statistics such as Apps, Available OS Updates, Certificates, Content, Device Info, Security, Time Windows, and User Info.
Compliance	Display the status, policy name, date of the previous and forthcoming compliance check and the actions already taken on the device. The **Compliance** tab includes advanced troubleshooting and convenience features. ■ Non-Compliant devices, and devices in pending compliance status, have troubleshooting functions available. You can reevaluate compliance on a per-device basis ( ) or get detailed information about the compliance status on the device ( ). ■ Users with Read-Only privileges can view the specific compliance policy directly from the **Compliance** tab while Administrators can make edits to the compliance policy.
Profiles	View all profiles currently assigned, installed, and unmanaged on a device.
Apps	View all apps currently assigned and installed on the device. The **App Compliance** column identifies SDK-built applications that are non-compliant with SDK App Compliance settings. Find these settings in **Groups & Settings > All Settings > Settings and Policies > SDK App Compliance**.
Content	View the status, type, name, version, priority, deployment, last update, date, time of views, and content on the device marked 'Required' by the administrator in the Workspace ONE UEM Managed Repository. This tab also provides a toolbar for administrative action (install or delete).

Menu Tab	Description
Location	View current location or location history of a device. Select the **Period** or length of time you are looking back in **Search** of location data points. The Custom Period enables you to select a range of dates and times in 5-minute increments. You can also review latitude and longitude coordinates of these data points by moving the pointer over location markers on the map. Enable the collection of location data by navigating to **Groups & Settings > All Settings > Devices & Users** and selecting the platform-specific **Hub Settings** page. For more information about location data as it relates to privacy, see Privacy Best Practices. Edit the number of location data points collected and the minimum distance between locations by navigating to **Groups & Settings > All Settings > Installation > Maps**.
User	Access details about the user of a device and the status of the other devices enrolled to this user.
Time Window	View details about the time window assigned to the device, including its sync status, applied status, time, and schedule details. You can direct end users to select **Sync Device** from the Workspace ONE Intelligent Hub app, which updates the sync status. Time window events are logged by the event logger when the minimum logging level is set to **Information** or **Debug**. For details, see Event Logs.

Menu Tab	Description
More	These additional menu tabs vary based on the device platform. ■ **Network** – View current network information (Cellular, Wi-Fi, Bluetooth, IMEI) of a device. ■ **Security** – View current security status of a device based on security settings. ■ **Telecom** – View amounts of calls, data, and messages sent and received. ■ **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 certificate expiration dates. ■ **Products** – View complete history and status of all product packages provisioned to the device and any provisioning errors. You can also Force Reprocess (redeploy) a product. ■ **Terms of Use** – View a list of End-User License Agreements (EULAs) which have been accepted during enrollment.
More,cont.	■ **Alerts** – View all alerts associated with the device. ■ **Books** – View all internal books on the device. ■ **Shared Device Log** – View the history of the shared device including past check-ins and check-outs and status. ■ **Restrictions** – View all restrictions currently applied to a device. This tab also shows specific restrictions by Device, Apps, Ratings, and Passcode. ■ **Status History** – View history of device in relation to enrollment status. ■ **Targeted Logging** – View the logs for the Console, Catalog, Device Services, Device Management, and Self Service Portal. You must enable Targeted Logging in settings and a link is provided for this purpose. You must then select the **Create New Log** button and select a length of time the log is collected. ■ **Troubleshooting** – View **Event Log** and **Commands** logging information. This page features export and search functions, enabling you to perform targets searches and analysis. ■ **Event Log** – View detailed debug information and server check-ins, including a **Filter** by **Event Group Type**, **Date Range**, **Severity**, **Module**, and **Category**. In the **Event Log** listing, the **Event Data** column may display hypertext links that open a separate screen with even more detail surrounding the specific event. This information enables you to perform advanced troubleshooting such as determining why a profile fails to install. ■ **Commands** – View detailed listing of pending, queued, and completed commands sent to the device. Includes a **Filter** enabling you to filter commands by **Category**, **Status**, and specific **Command**. ■ **Attachments** – Use this storage space on the server for screenshots, documents, display Hub logs sent from the Intelligent Hub, and links for troubleshooting and other purposes without taking up space on the device itself. ■ **Compromised Detection** – View details about the compromised status of the device including the specific **Reason** for the status and how **Severe** the status is.

Device Enrollment

9

Enrolling a device is required before the device can be managed by the Workspace ONE UEM powered by AirWatch. There are multiple enrollment paths, each path with options.

Reasons You Should Not Enroll Devices in Global

There are several reasons enrolling devices directly to the top-level organization group (OG), commonly known as Global, is not a good idea. These reasons are multitenancy, inheritance, and functionality.

Multitenancy

You can make as many child organization groups as you need and you configure each one independently from the others. Settings you apply to a child OG do not impact other siblings.

Inheritance

Changes made to a parent level OG apply to the children. Conversely, changes made to a child level OG do not apply to the parent or siblings.

Functionality

There are settings and functionality that are only configurable to Customer type organization groups. These include wipe protection, telecom, and personal content. Devices added directly to the top-level Global OG are excluded from these settings and functionality.

The Global organization group (OG) is designed to house Customer and other types of OGs. Given the way inheritance works, if you add devices to Global and configure Global with settings intended to affect those devices, you are also affecting all the Customer OGs underneath. This undermines the benefits of multitenancy and inheritance.

This chapter includes the following topics:

- Enroll a Device With Workspace ONE Intelligent Hub
- Additional Enrollment Workflows
- Additional Enrollment Restrictions
- Autodiscovery Enrollment
- Basic vs. Directory Services Enrollment

- Bring Your Own Device (BYOD) Enrollment
- Configure Enrollment Options
- Denylist and Allowlist Device Registrations
- Device Registration
- Enrollment Status
- Self-Enrollment Versus Device Staging
- User Enrollment OG Precedence Order
- Workspace ONE Direct Enrollment

Enroll a Device With Workspace ONE Intelligent Hub

Enrolling a device with the Workspace ONE Intelligent Hub is the main option for Android, iOS, and Windows devices in Workspace ONE Express and Workspace ONE UEM powered by AirWatch.

Procedure

1 Download and install the Workspace ONE Intelligent Hub from the Google Play Store (for Android devices) or from the App Store (for Apple devices).

   Downloading the Workspace ONE Intelligent Hub from public application stores requires either an Apple ID or a Google Account.

   Windows 10 devices must point the default browser on the device to https://getwsone.com to download the Hub.

2 Run the Workspace ONE Intelligent Hub upon the completion of the download or return to your browser session.

   Important To ensure a successful installation and running of the Workspace ONE Intelligent Hub on your Android device, it must have a minimum of 60 MB of space available. CPU and Run Time Memory are allocated per app on the Android platform. If an app uses more resources than allocated, Android devices optimize themselves by killing such an app.

3 Enter your email address when prompted. The Workspace ONE console checks if your address has been previously added to the environment. In which case, you are already configured as an end user and your organization group is already assigned.

   If the Workspace ONE console cannot identify you as an end user based on your email address, you are prompted to enter your **Server**, **Group ID**, and **Credentials**. If your environment URL and Group ID are needed, your Workspace ONE Administrator can provide it.

4 Finalize the enrollment by following all remaining prompts. You can use your email address in place of user name. If two users have the same email, the enrollment fails.

Results

The device is now enrolled with the Workspace ONE Intelligent Hub app. In the **Summary** tab of the **Device Details View** for this device, the security panel displays "Hub Registered" to reflect this enrollment method.

For more information, see Chapter 8 Device Details.

Additional Enrollment Workflows

In some unique cases, the enrollment process into Workspace ONE UEM powered by AirWatch must be adjusted for specific organizations and deployments. For each of the additional enrollment options, end users need the credentials detailed in the Required Information section of this guide.

- **Multi-Domain Environments** – Enrollment login in single and multi-domain environments is supported provided they are made in the following format. **domain\username**.
- **Kiosk Mode and Kiosk Designer** – Windows desktop end users can configure their desktop devices in kiosk mode. Users can also use the kiosk designer in the Workspace ONE UEM console to create a multi-app kiosk.
- **Notification-Prompt Enrollment** – The end user receives a notification (email and SMS) with the Enrollment URL, and enters their Group ID and login credentials. When the end user accepts the Terms of Use (TOU), the device automatically enrolls and outfits with all MDM features and content. This acceptance includes selected apps and features from the Workspace ONE UEM server.
- **Single-Click Enrollment** – In this workflow, which applies to web-based enrollments, an administrator sends a Workspace ONE UEM-generated token to the user with an enrollment link URL. The user merely selects the provided link to authenticate and enroll the device, making it the easiest and fastest enrollment process for the end user. This method can also be secured by setting expiration times.
  - **Web Enrollment** – There is an optional welcome screen that an administrator can invoke for Web enrollments by appending "/enroll/welcome" to the active environment. For example, by supplying the URL **https://<custenvironment > /enroll/welcome** to users participating in Web Enrollment, they see a Welcome to Workspace ONE UEM screen. This screen includes options to enroll with an Email Address or Group ID. The Web Enrollment option is applicable for Workspace ONE UEM version 8.0 and above.
- **Dual-Factor Authentication** – In this workflow, an administrator sends the same enrollment token generated by Workspace ONE UEM, but the user must also enter their login credentials. This method is just as easy to run as the Single-Click Enrollment but adds one additional level of security. The additional security measure is requiring the user to enter their unique credentials.
- **End-User Registration** – The user logs in to the Self-Service Portal (SSP) and registers their own device. Once registration is complete, the system sends an email to the end user that

includes the enrollment URL and login credentials. This workflow assumes that administrators have not already performed device registration for a corporate device fleet. It also assumes that you require corporate devices to be registered so administrators can track enrollment status. Also, end-user registration means that corporate devices can be used together with user-purchased devices.

- **Single-User Device Staging** – The administrator enrolls devices on behalf of an end user. This method is useful for administrators who set up multiple devices for an entire team or single members of a team. Such a method saves the end users the time and effort of enrolling their own devices. The admin can also configure and enroll a device and mail it directly to a user who is off-site.
- **Multi-User Device Staging** – The administrator enrolls devices that are used by multiple users. Each device is enrolled and provisioned with a specific set of features that users access only after they log in with unique credentials.

Additional Enrollment Restrictions

You can set up additional enrollment restrictions to control who can enroll in Workspace ONE UEM and which device types are allowed.

Applying additional enrollment restrictions is applicable to any deployment, regardless of directory services integration, BYOD support, device registration, or other configurations.

You can also determine the maximum number of enrolled devices per organization group. Once you configure enrollment restrictions, you can even save those restrictions as a policy.

Consideration #1: Will You Restrict Specific Platforms, OS Versions, or Maximum Number of Allowed Devices?

- Do you want to support only those devices that feature built-in enterprise management – such as Samsung SAFE/Knox, HTC Sense, LG Enterprise, and Motorola devices? If so, you can require that Android devices have a supported enterprise version as an enrollment restriction.
- Do you want to limit the maximum devices that a user is allowed to enroll? If so, you can set this amount, including distinguishing between corporate owned and employee owned devices.
- Are there certain platforms you do not support in your deployment? If so, you can create a list of blocked device platforms that prevent them from enrolling.

Your organization must evaluate the number and kinds of devices your employees own. They must also determine which ones they want to use in your work environment. After this work is complete, you can save these enrollment restrictions as a policy.

Consideration #2: Will You Restrict Enrollment to a Set List of Corporate Devices?

Additional registration options provide control of the devices that end users are allowed to enroll. Useful to accommodate BYOD deployments, you can prevent the enrollment of denylisted devices or restrict the enrollment to only allowlisted devices. You can allowlist devices by type, platform, or specific device IDs and serial numbers. For more information, see Denylist and Allowlist Device Registrations.

Consideration #3: Will You Restrict the Number of Enrolled Devices Per Organization Group?

You can apply a limit on the number of enrolled devices to an organization group (OG). Imposing such a limit helps you manage your deployment by preventing you from exceeding the number of valid enrollments. For more information, see the section on this page entitled **Limit the Number of Enrolled Devices Per Organization Group**.

Configure Enrollment Restriction Settings

When integrating Workspace ONE UEM with directory services, you can determine which users can enroll devices into your corporate deployment.

You can restrict enrollment to only known users or to configured groups. Known users are users that exist in the UEM console. Configured groups are users associated to directory service groups if you opt to integrate with user groups. You can also limit the number of devices enrolled per organization group and save restrictions as a reusable policy.

These options are available by navigating to **Groups & Settings > All Settings > Devices & Users > General > Enrollment** and selecting the **Restrictions** tab. The Restrictions tab allows you to customize enrollment restriction policies by organization group and user group roles.

- Create and assign existing enrollment Restrictions policies using the Policy Settings.
- Assign the policy to a user group under the Group Assignment Settings area.
- Denylist or allowlist devices by platform, operating system, UDID, IMEI, and so on.

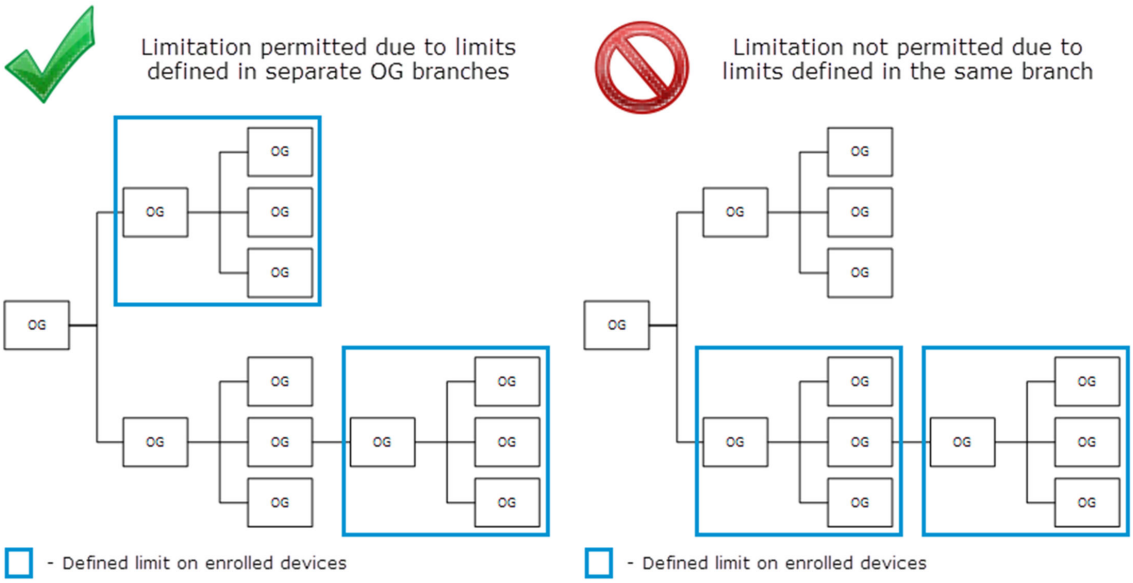
Setting	Description
User Access Control	Workspace ONE Direct Enrollment supports all user access control options. **Restrict Enrollment to Known Users** – Enable to restrict enrollment only to users that exist in the UEM console. This restriction applies to directory users you manually added to the UEM console one by one or through batch import. It can also be used to lock down enrollment after an initial deployment that allowed anyone to enroll. This option enables you to be selective about who can enroll. You can allow all directory users who do not have accounts in the UEM console to enroll into Workspace ONE UEM by disabling this option. User accounts are automatically created during enrollment. **Restrict Enrollment to Configured Groups** – Enable to restrict enrollment and only allow users belonging to All Groups or Selected Groups (if you have integrated with user groups) to enroll devices. Do not select this option if you have not integrated with your directory services user groups. **Note** Restricting Enrollment to Configured Groups is only supported with Just-In-Time (JIT) user enrollment when each of the following are true: ■ Workspace ONE UEM is configured as the source of authentication for Workspace ONE Intelligent Hub, which you configure by navigating to **Groups & Settings > All Settings > Devices & Users > General > Enrollment** and select the **Authentication** tab. ■ SAML for authentication is disabled for enrollment users. Configure this by navigating to **Groups & Settings > All Settings > System > Enterprise Integration > Directory Services** and reference the Directory Services System Settings Documentation. You can create Workspace ONE UEM user accounts during enrollment by disabling the option to allow all directory users to enroll. Select **Enterprise Wipe devices of users that are removed from configured groups** to automatically enterprise wipe devices. If **All Groups** is selected, devices not belonging to any user group are removed. If **Selected Groups** is selected, then devices not belonging to a particular user group are removed. One option for integrating with user groups is to create an "MDM Approved" directory service group and import it to Workspace ONE UEM. After this import step, you can add existing directory service user groups to the "MDM Approved" group as they become eligible for Workspace ONE UEM.
Set limit for maximum enrolled devices at this OG and below	Enable and **Enter Device Limit** to limit the number of devices allowed to enroll in the current organization group (OG). Workspace ONE Direct Enrollment supports this option.

Note Restrictions do not apply for iOS devices enrolled through Apple's Device Enrollment Program (DEP), because the required device information is only received after the device has been enrolled.

Limit the Number of Enrolled Devices Per Organization Group

You can apply a limit on the number of enrolled devices to an organization group (OG). Imposing such a limit helps you manage your deployment by preventing you from exceeding the number of valid enrollments in a per-device licensing environment.

This device limit can be placed on any type of OG (global, customer, partner). Once a limit is set at one OG, you are unable to set another limit anywhere in the same OG branch. You can set another enrolled device limit but only if you are setting it in a separate OG branch.



If this option is unavailable, check the parent OG (higher than the current OG) or a child OG (lower than the current OG). It is likely that an existing limit has already been defined above or below your current OG.

1 Navigate to **Groups & Settings > All Settings > Devices & Users > General > Enrollment** and select the **Restrictions** tab.

2 Enable the limit under **Set a limit for maximum enrolled devices at this Organization Group and below**.

Create an Enrollment Restriction Policy

Your organization must evaluate the number and kinds of devices your employees own. They must also determine which devices to use in your work environment. After this work is complete, you can save these enrollment restrictions as a policy.

1 Navigate to **Devices > Device Settings > Devices & Users > General > Enrollment**.

2 Select the **Restrictions** tab and then select **Add Policy** located in the **Policy Settings** section.

3 In the **Add/Edit Enrollment Restriction Policy** screen, add an enrollment restriction policy.

Setting	Description
Enrollment Restriction Policy Name	Enter a name for your enrollment restriction policy.
OrganizationGroup	Select an organization group from the drop-down menu. This is the OG to which your new enrollment restriction policy applies.
Policy Type	Select the type of enrollment restriction policy, which can be either **Organization Group Default** to apply to the selected organization group, or **User Group Policy** for specific User Groups through Group Assignment Settings on the **Restrictions** tab.

Setting	Description
AllowedOwnership Types	Select whether to permit or prevent **Corporate - Dedicated**, **Corporate - Shared**, and **Employee Owned** devices. Workspace ONE Direct Enrollment only supports the ownership types Corporate Dedicated and Employee Owned.
AllowedEnrollment Types	Select whether to permit or prevent the enrollment of devices using **MDM** (Workspace ONE Intelligent Hub) and AirWatch **Container** (for iOS/Android) apps.
Device Limit per User	Select **Unlimited** to allow users to enroll as many devices as they want. Workspace ONE Direct Enrollment supports setting a device limit per user. Deselect this box to enter values for the **Device Limit Per User** section, to define the maximum number of devices per ownership type. ■ **Maximum Devices Per User** ■ **Corporate Max Devices** ■ **Shared Max Devices** ■ **Employee Owned Max Devices**
Allowed DeviceTypes	Select the **Limit enrollment to specific platforms, models or operating systems** check box to add additional device-specific restrictions. This option is supported by Workspace ONE Direct Enrollment.
Device Level Restrictions Mode	This option is only available if **Limit enrollment to specific platforms, models or operating systems** is selected in the **Allowed Device Types** option. Determine the kind of device limitations you should have. ■ **Only allow listed device types (Allowlist)** – Select this option to explicitly allow only devices matching the parameters you enter and to block everything else. ■ **Block listed device types (Denylist)** – Select this option to explicitly block devices matching the parameters you enter and to allow everything else. For either device-level restrictions mode, select **Add Device Restriction** to choose a **Platform**, **Model**, **Manufacturer** (specific to Android devices), or **Operating System**. You may also add a **Device Limit** per defined device restriction. You may add multiple device restrictions. You can also block specific devices based on their IMEI, Serial Number or UDID by navigating to **Devices > Lifecycle > Enrollment Status** and selecting **Add**. This is an effective way to block a single device and prevent it from re-enrolling without affecting other users' devices. Preventing re-enrollment is also available as an option when performing an Enterprise Wipe. This option is supported by Workspace ONE Direct Enrollment.

4 Select **Save** to save your changes and navigate back to the **Devices & Users / General / Enrollment** screen.

Autodiscovery Enrollment

Workspace ONE UEM powered by AirWatch makes the enrollment process simple, using an email-based autodiscovery system to enroll devices to environments and organization groups

(OG). Autodiscovery can also be used to allow end users to authenticate into the Self-Service Portal (SSP).

Note To enable an autodiscovery for on-premises environments, ensure that your environment can communicate with the Workspace ONE UEM Autodiscovery servers.

Registration for Autodiscovery Enrollment

The server checks for an email domain uniqueness, only allowing a domain to be registered at one organization group in one environment. Because of this server check, register your domain at your highest-level organization group.

Autodiscovery is configured automatically for new Software as a Service (SaaS) customers.

Configure Autodiscovery Enrollment from a Parent Organization Group

Autodiscovery Enrollment simplifies the enrollment process enrolling devices to intended environments and organization groups (OG) using end-user email addresses.

Configure an autodiscovery enrollment from a parent OG by taking the following steps.

1 Navigate to **Groups & Settings > All Settings > Admin > Cloud Services** and enable the **Auto Discovery** setting. Enter your login email address in **Auto Discovery AirWatch ID** and select **Set Identity**.

   a If necessary, navigate to https://my.workspaceone.com/set-discovery-password to set the password for Auto Discovery service. Once you have registered and selected **Set Identity**, the **HMAC Token** auto-populates. Click **Test Connection** to ensure that the connection is functional.

2 Enable the **Auto Discovery Certificate Pinning** option to upload your own certificate and pin it to the auto discovery function. You can review the validity dates and other information for existing certificates, and also can **Replace** and **Clear** these existing certificates.

3 Select **Add a certificate** and the settings **Name** and **Certificate** display. Enter the name of the certificate you want to upload, select the **Upload** button, and select the cert on your device.

4 Select **Save** to complete an autodiscovery setup.

What to do next: Instruct end users who enroll themselves to select the email address option for authentication, instead of entering an environment URL and Group ID. When users enroll devices with an email address, they enroll into the same group listed in the **Enrollment Organization Group** of the associated user account.

Configure Autodiscovery Enrollment from a Child Organization Group

You can configure Autodiscovery Enrollment from a child organization group below the enrollment organization group. To enable an autodiscovery enrollment in this way, you must require users to select a Group ID during enrollment.

Force users to select a Group ID during enrollments.

1 Navigate to **Devices > Device Settings > General > Enrollment** and select the **Grouping** tab.

2 Select **Prompt User to Select Group ID**.

3 Select **Save**.

Basic vs. Directory Services Enrollment

You can enroll existing users and groups of directory services like Active Directory (AD), Lotus Domino, and Novell e-Directory. If you do not have such an infrastructure or you choose not to integrate with it, you must perform Basic Enrollment in Workspace ONE UEM.

Basic Enrollment refers to the process of manually creating user accounts and user groups for each of your organization's users. If your organization is not integrating Workspace ONE UEM with a directory service, basic enrollment is how you create user accounts.

If you have a few basic accounts to create, then create them one at a time as described in Create Basic User Accounts.

For basic enrollments involving larger end-user numbers, you can save time by filling out and uploading CSV (comma-separated values) template files. These files contain all user information you add and are introduced to UEM through the batch import feature. For more information, see the topic Batch Import Users or Devices.

Note While Workspace ONE UEM supports a mix of both Basic and Directory-based users, you typically use one or the other for the initial enrollment of users and devices.

Pros and Cons

	Pros	Cons
Basic Enrollment	■ Can be used for any deployment method. ■ Requires no technical integration. ■ Requires no enterprise infrastructure. ■ Can enroll into potentially multiple organization groups.	■ Credentials only exist in Workspace ONE UEM and do not necessarily match existing corporate credentials. ■ Offers no federated security. ■ Single sign on not supported. ■ Workspace ONE UEM stores all user names and passwords. ■ Cannot be used for Workspace ONE Direct Enrollment.
Directory Service Enrollment	■ End users authenticate with existing corporate credentials. ■ Detects and syncs changes from the directory system into Workspace ONE UEM automatically. For instance, when you disable users in AD, the corresponding user account in Workspace ONE UEM console is marked inactive. ■ Secure method of integrating with your existing directory service. ■ Standard integration practice. ■ Can be used for Workspace ONE Direct Enrollment. ■ SaaS deployments using the AirWatch Cloud Connector require no firewall changes and offers a secure configuration to other infrastructures, such as Microsoft ADCS, SCEP, and SMTP servers.	■ Requires an existing directory service infrastructure. ■ SaaS deployments require additional configuration due to the AirWatch Cloud Connector being installed behind the firewall or in a DMZ.

Enrollment Considerations, Basic Versus Directory

When considering end-user enrollment, in addition to the existing pros and cons of Basic versus Directory users, there are other questions to consider.

Consideration #1: Who Can Enroll?

In answering this question, consider the following.

- Is the intent of your MDM deployment to manage devices for all your organization's users at or below the base DN * you configured? If so, the easiest way to achieve this arrangement is to allow all users to enroll by ensuring the Restrict Enrollment check boxes are deselected.

  You can allow all users to enroll during the initial deployment rollout and then afterward, restrict the enrollment to prevent unknown users from enrolling. As your organization adds new employees or members to existing user groups, these changes are synced and merged.

- Are there certain users or groups who are not to be included in MDM? If so, you must either add users one at a time or batch import a CSV (comma-separated value) file of only eligible users.

* The base DN, or distinguished name, is the point from which a server searches for users. A distinguished name is a name that uniquely identifies an entry in the directory. Every entry in the directory has a DN.

Consideration #2: Where Will Users Be Assigned?

Another consideration to make when integrating your Workspace ONE UEM environment with directory services is how you assign directory users to organization groups during an enrollment. In answering this question, consider the following.

- Have you created an organization group structure that logically maps to your directory service groups? You must complete this task before you can edit user group assignments.
- If your users are enrolling their own devices, the option to select a Group ID from a list is simple. Human error is a factor in this simplicity and can lead to incorrect group assignments.

You can automatically select a Group ID based on a user group or allow users to select a Group ID from a list. These **Group ID Assignment Mode** options are available by navigating to **Devices > Device Settings > Devices & Users > General > Enrollment** and selecting the **Grouping** tab.

Enabling Directory Service-Based Enrollment

Directory service enrollment refers to the process of integrating Workspace ONE UEM with your organization's directory service infrastructure. Integrating your directory service in this manner means you can import users automatically and, optionally, user groups such as security groups and distribution lists.

When integrating with a directory service such as Active Directory (AD), you have options for how you import users.

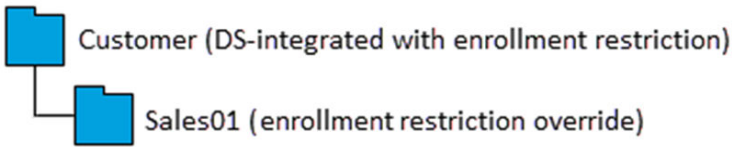
- **Allow all directory users to enroll** – You can allow all your directory service users to enroll. Also, you can set up your environment to auto discover users based on their email. Then create a Workspace ONE UEM user account for them when they perform an enrollment.
- **Add users one by one** – After integrating with a directory service, you can add users individually in the same manner as creating basic Workspace ONE UEM user accounts. The only difference is you must enter their user name and select **Check User** to auto populate remaining information from your directory service.
- **Batch upload a CSV file** – Using this option, you can import a list of directory services accounts in a CSV (comma-separated values) template file. This file has specific columns, some of which cannot be left blank.

- **Integrate with user groups (Optional)** – With this method, you can use your existing user group memberships to assign profiles, apps, compliance policies, and so on.

Note For information about how to integrate your Workspace ONE UEM environment with your directory service, including SAML provider integration, refer to the Integrate Directory Service Guide.

Directory Service Integration and Enrollment Restrictions

When directory service integration is configured on Workspace ONE UEM, directory service accounts inherit enrollment settings from the organization group (OG) from which the directory service is configured. Basic accounts, however, abide by local settings including overrides.



Taking the above organization group model as an example, assume the option **Enterprise Wipe devices of users that are removed from configured groups** is enabled on the OG named 'Customer'.

Given this scenario, **directory** enrollment users in the Sales01 child OG who leave a configured group see their devices wiped despite the enrollment restriction override configured in that OG. This is true even if those accounts have devices enrolled on a different OG because enrollment settings are user-centric, not device centric.

However, in this same scenario, devices belonging to **basic** enrollment users of Sales01 OG who leave a configured group are not wiped. This is because basic enrollment users in Sales01 are not a part of the directory service-integrated OG and therefore recognize and abide by the enrollment restriction override.

Bring Your Own Device (BYOD) Enrollment

A major challenge in managing users' personal devices in Workspace ONE UEM is recognizing and distinguishing between employee-owned and corporate-owned devices and then limiting enrollment to only approved devices.

Workspace ONE UEM enables you to configure many options that customize the end-user experience of enrolling a personal device. Before you begin, you must consider how you plan to identify employee-owned devices in your deployment and whether to enforce enrollment restrictions for employee-owned devices.

Enrollment Considerations

Assuming you are allowing employees to enroll their personal devices in your Workspace ONE UEM environment, there are many considerations you must make before you proceed.

Consideration #1: Will BYOD Users Enroll with VMware Workspace ONE or the Workspace ONE Intelligent Hub?

VMware Workspace ONE is a secure enterprise platform that delivers and manages any app on any device. It begins with self-service, single-sign on access to cloud, mobile, and Windows apps and includes powerfully integrated email, calendar, file, and collaboration tools.

With Workspace ONE, users do not need to enroll their personal devices to get access to services. The Workspace ONE app itself can be downloaded from the Apple App Store, Google Play, or Microsoft Store and installed. A user then logs in and gains access to applications based on the established policies. The Workspace ONE app configures an MDM management profile during its installation that enrolls the device automatically.

Consideration #2: Will You Apply Additional Enrollment Restrictions for Employee-Owned Devices?

When answering this question, consider the following.

- Does your MDM deployment only support certain device platforms? If so, you can specify these platforms and only allow devices running on them to enroll.
- Are you limiting the number of personal devices an employee is allowed to enroll? If so, you can specify the maximum number of devices a user is allowed to enroll.

You can set up additional enrollment restrictions to further control who can enroll and which device types are allowed. For example, you can opt to support only those Android devices that feature built-in enterprise management functionality. After your organization evaluates and determines which kinds of employee-owned devices they want to use in your work environment, you can configure these settings.

Identify Corporate Devices and Specify Default Device Ownership

Preparing a list of devices can be useful if you have a mix of corporate-owned devices and employee-owned devices which employees enroll themselves. As enrollment commences, devices you identified as Corporate-Owned have their ownership type configured automatically based on what you selected. Then you can configure all employee-owned devices – which are not in the list – to enroll with an ownership type as Employee-Owned.

The following procedure explains how to import a list of pre-approved corporate devices. You can apply the Corporate-Owned ownership type after enrollment automatically, even if you have a restriction that automatically applies the Employee-Owned ownership type.

Restrictions for an open enrollment, by contrast, explicitly allow or block the enrollment for devices matching parameters you identify including platform, model, and operating system.

1 Navigate to **Devices > Lifecycle > Enrollment Status** and select **Add**, then **Batch Import** which displays the **Batch Import** screen.

Alternatively, you can select **Add** then **Allowlisted Devices** to enter up to 30 allowlisted devices at a time by IMEI, UDID, or Serial Number. You can also select either Corporate Owned or Corporate Shared as the **Ownership Type**.

2 Enter a **Batch Name** and **Batch Description**, then select **Add Allowlisted Device** as the **Batch Type**.

3 Select the link entitled, "Download template with an example for allowlisted devices" and save this comma-separated values (CSV) template to a location you have access to. Edit this CSV file with Excel to add all the devices you want to allowlist, then save the file.

4 Select **Choose File** and select your saved CSV file.

5 Select **Import** to import this device information to your allowlist.

6 Set the **Default Device Ownership** type to Employee Owned for all open enrollment.

   a Navigate to **Devices > Devices Settings > Devices & Users > General > Enrollment** and select the **Grouping** tab.

   b Select **Employee Owned** as the **Default Device Ownership**.

   c Select the **Default Role** assigned to the user, which determines the level of access the user has to the Self-Service Portal (SSP).

   d Select the **Default Action** for **Inactive Users**, which determines what to do if the user is marked as inactive.

   e Select **Save**.

Prompt Users to Identify Ownership Type

If your deployment has organization groups with multiple ownership types, you can prompt users to identify their ownership type during enrollment. Careful consideration should be used before allowing users to choose their own ownership type.

While simple, this approach assumes that every user correctly selects the appropriate ownership type applicable to their device. If a personal device user selects the Corporate-Owned type in error, their device is now subject to policies and profiles that normally do not apply to personal devices. This erroneous selection can have serious legal implications regarding user privacy.

You can always update the ownership type on individual devices later but it is safer and more secure to make a list of corporate devices. Then enroll the corporate-owned devices separately and later, set the default ownership type to Employee Owned.

1 Navigate to **Devices > Device Settings > Devices & Users > General > Enrollment** and select the **Optional Prompt** tab.

2 Select **Prompt for Device Ownership Type**. During enrollment, users are prompted to select their ownership type.

3 Select **Save**.

Configure Enrollment Options

You can customize your enrollment workflow by incorporating advanced options available in Workspace ONE UEM.

Access more enrollment options by navigating to **Devices > Devices Settings > Devices & Users > General > Enrollment**.

Getting Started

Setting	Description
Add Email Domain	This button is used for setting up the Auto-Discovery Service to register email domains to your environment.
Authentication Mode(s)	Select the allowed authentication types, which include: ■ **Basic** – Basic user accounts (ones you create manually in the UEM console) can enroll. ■ **Directory** – Directory user accounts (ones that you have imported or allowed using directory service integration) can enroll. Workspace ONE Direct Enrollment supports Directory users with or without SAML. ■ **Authentication Proxy** – Allows users to enroll using Authentication Proxy user accounts. Users authenticate to a web endpoint. ■ Enter **Authentication Proxy URL**, **Authentication Proxy URL Backup**, and **Authentication Method Type** (choose between HTTP Basic and Exchange ActiveSync).
Source of Authentication for Intelligent Hub	Select the system the Intelligent Hub service uses as its source for users and authentication policies. ■ **Workspace ONE UEM** – Select this setting if you want Hub Services to use Workspace ONE UEM as the source of users and auth policies. When you configure the **Hub Configuration** page for Hub Services, enter the Hub Services tenant URL. ■ **Workspace ONE Access** – Select this setting if you want Hub Services to use Workspace ONE Access as the source of users and auth policies. When you configure the **Hub Configuration** page for Hub Services, enter the Workspace ONE Access tenant URL. For details about Workspace ONE Intelligent Hub, see the VMware Workspace ONE Hub Services Documentation. For details about Workspace ONE Access, see the VMware Workspace ONE Access Documentation.
Devices Enrollment Mode	Select the preferred device enrollment mode, which includes: ■ **Open Enrollment** – Essentially allows anyone meeting the other enrollment criteria (authentication mode, restrictions, and so on) to enroll. Workspace ONE Direct Enrollment supports open enrollment. ■ **Registered Devices Only** – Only allowed users to enroll using devices you or they have registered. Device registration is the process of adding corporate devices to the UEM console before they are enrolled. Workspace ONE Direct Enrollment supports allowing only registered devices to enroll but only if registration tokens are not required.
Require Registration Token	Visible only when **Registered Devices Only** is selected. If you restrict enrollment to registered devices only, you also have the option of requiring a registration token to be used for enrollment. This increases security by confirming that a particular user is authorized to enroll. You can send an email or SMS message with the enrollment token attached to users with Workspace ONE UEM accounts.

Setting	Description
Require Intelligent Hub Enrollment for iOS	Select this check box to require iOS device users to download and install the Workspace ONE Intelligent Hub before they can enroll. If disabled, Web Enrollment is available.
Require Intelligent Hub Enrollment for macOS	Select this check box to require macOS device users to download and install the Workspace ONE Intelligent Hub before they can enroll. If disabled, Web Enrollment is available.

Configure Enrollment Options on Terms of Use

The **Terms of Use** tab allows you to add and review terms of use as it pertains to enrollment. The Terms of Use tab can be found by navigating to **Devices > Device Settings > Devices & Users > General > Enrollment**.

Setting	Description
Require Enrollment Terms of Use Acceptance	Enable this setting to require the acceptance of a term of use agreement at enrollment time.
Add New Enrollment Terms of Use	Select to initiate the addition of a term of use agreement for enrollment purposes.

Important If you enable **Require Enrollment Terms of Use Acceptance**, you must create a Terms of Use or Windows Desktop devices might fail to enroll.

Configure Enrollment Options on Grouping Tab

The Grouping tab allows you to view and specify basic information regarding organization groups and Group IDs for end users. Enable **Group ID Assignment Mode** to select how the Workspace ONE UEM powered by AirWatch environment assigns Group IDs to users.

The Grouping tab can be found by navigating to **Devices > Device Settings > Devices & Users > General > Enrollment**.

Setting	Description
Group ID Assignment Mode	Workspace ONE Direct Enrollment supports all assignment modes. ■ **Default** - Select this option if users are provided with Group IDs for enrollment. The Group ID used determines what organization group the user is assigned to. ■ **Prompt User to Select Group ID** - Enable this option to allow directory service users to select a Group ID from a list upon enrollment. The **Group ID Assignment** section lists available organization groups and their associated Group IDs. This listing does not require you to perform group assignment mapping, but does mean users have the potential to select an incorrect Group ID. ■ **Automatically Select Based on User Group** - This option only applies if you are integrating with user groups. Enable this option to ensure that users are automatically assigned to organization groups based on their directory service group assignments. The **Group Assignment Settings** section lists all the organization groups for the environment and their associated directory service user groups. Select the **Edit Group Assignment** button to modify the organization group/user group associations and set the rank of precedence each group has. For example, you have three groups, Executive, Sales, and Global, which are ranked in order of job role. Everyone is a member of Global, so if you were to rank that user group first, it puts all your users into a single organization group. Instead, if you rank Executives first, you ensure the small number of people belonging to that group are placed in their own organization group. Then rank Sales second, and you ensure that all Sales employees are placed in an organization group specific to sales. Rank Global last and anyone not already assigned to a group is placed in a separate organization group.

Table 9-1. Default

Setting	Description
Default Device Ownership	Select the default Device Ownership of devices enrollment into the current organization group. Workspace ONE Direct Enrollment supports setting a default device ownership.
Default Role	Select the default roles assigned to users at the current organization group, which can affect access to the Self-Service Portal. 1 **Full Access** - Grants users with access to higher SSP functions such as install/remove profiles and apps, reset passcodes, send device messages, and write-access to content. 2 **Basic Access** - Grants users with a low impact access. They can register their own device, view-only (but not install) profiles and apps, view their own account, and query and find their own device. 3 **External Access** - Users with External Access have all the abilities as basic access users but they also have read-only access to content on the SSP that is explicitly shared with them. Workspace ONE Direct Enrollment supports setting a default role.
Default Action for Inactive Users	Select the default action that impacts Active Directory users if their devices become inactive. Processing of accounts is always user-centric over device-centric. This fact means the processing behavior applied to devices is based upon settings for the OG where the **user** is managed, not the device. Workspace ONE Direct Enrollment supports setting a default action for inactive users.

Table 9-2. User Group Sync

Setting	Description
Sync User Groups in Real Time for Workspace ONE	Workspace ONE can sync user groups for a given user as they register with the UEM console. Enabled by default, this feature is most effective when user groups are being used with great frequency for app assignment, profile assignment, policy assignment, or user mapping. This feature is CPU-intensive so unless your use case is similar to the above, disable this setting for improved performance and to prevent latency issues while launching the Workspace ONE application.

Table 9-3. User Role Mapping

Setting	Description
Enable Directory Group-Based Mapping	Select this box to enable ranked assignments that link a directory user group to a specific Workspace ONE UEM role. Users belonging to a particular group are assigned the associated roles. If they belong to more than one group, they take the highest ranked pairing. You can edit the order in which role-infused user groups are ranked by selecting the **Edit assignment** button. Workspace ONE Direct Enrollment supports directory group-based mapping.

Configure Enrollment Options on Optional Prompt Tab

On the **Optional Prompt** tab, you can decide to request extra device information, or present optional messages regarding enrollment and MDM information to the user.

Navigate to **Devices > Device Settings > Devices & Users > General > Enrollment** and select the **Optional Prompt** tab.

Specific instructions for configuring messages, templates, and notifications follow after the table below.

Setting	Description
Prompt for Device Ownership Type	You can prompt the end user to select their device ownership type. Otherwise, configure a default device ownership type for the current organization group. Workspace ONE Direct Enrollment supports prompting for device ownership type.
Display Welcome Message	You can display a welcome message for your users early in the device enrollment process. You can configure both the header and the body of this welcome message by navigating to **System > Localization > Localization Editor**. Next, select the labels 'EnrollmentWelcomeMessageHeader' and 'EnrollmentWelcomeMessageBody' respectively.

Setting	Description
Display MDM Installation Message	You can display a message for your users during the device enrollment process. You can configure both the header and the body of this MDM installation message by navigating to **System > Localization > Localization Editor**. Next, select the labels 'EnrollmentMdmInstallationMessageHeader' and 'EnrollmentMdmInstallationMessageBody' respectively. If you opt to customize your own header and body messages using the Localization Editor, you must opt to 'Override' in the **Current Setting** option. Doing so ensures that your customizations are used instead of the default messages. In addition to making one-off localization changes, you can also make localization changes in bulk by uploading an edited comma-separated values (CSV) file. Download this localization template CSV file by navigating to **System > Localization > Localization Editor** and select the **Modify** button. Edit the file per your preferences to affect bulk localization changes and upload it using the same screen.
Enable Enrollment Email Prompt	You can prompt the user to enter their email credentials during enrollment. The Enrollment Email Prompt requests the email address from the end user to populate that option in the user record automatically. This data is beneficial to organizations deploying email to devices using the {EmailAddress} lookup value.
Enable Device Asset Number Prompt	You can prompt the user to enter the device asset number during enrollment. Workspace ONE Direct Enrollment supports enrollment email prompts but only when **Prompt for Device Ownership Type** is enabled and only for Corporate Owned devices.
Display Enrollment Transition Messages (Android Only)	You can display or hide enrollment messages on Android devices.
Enable the Status Tracking Page for OOBE	Enable this setting to display the status tracking page during the Out of Box Enrollment (OOBE) which displays the provisioning status of the device and informs the user which apps, resources, and policies have been installed.
Enable TLS Mutual Auth for Windows	You can force Windows Devices to use endpoints secured by TLS Mutual Authentication which requires an extra setup and configuration. Contact Support for assistance.
Display Authentication Screen Message (Windows Only)	You can provide your device end users with a customized log in hint about what they must use to enroll into the Workspace ONE UEM console. For example, if their enrollment authentication for UEM is the same as their Active Directory credentials, then you can include that as a hint. You can also include a link they can click to get help. This feature is currently supported by Windows devices only. You must provide your own localization by including translations of the hint in the same text box.

Create a Custom Enrollment Message

You can customize messages related to enrollment of a device and any future Mobile Device Management (MDM) prompts sent to a device.

1 Navigate to **Devices > Device Settings > General > Enrollment** and select the **Customization** tab.

2 Select **Use specific Message Template for each Platform** and select a device activation message template from the drop-down for each platform. Make a new message template by following the steps in the **Create Message Templates** section under this section.

3 For iOS devices, optionally configure the following.

   a Enter a **post-enrollment landing URL** for iOS devices.

   b Enter an **MDM Profile message** for iOS devices, which is the message displayed in the install prompt for the MDM profile upon enrollment.

4 Select **Save**.

Create Message Templates

You can create your own library of message templates customized by platform to cover the variety of scenarios you might encounter including enrollment.

1 Navigate to **Devices > Device Settings > General > Message Templates** and select **Add**.

2 Set the **Category** drop-down menu to match the category of your template. Options include **Administrator**, **Application**, **Compliance**, **Content**, **Device Lifecycle**, **Enrollment**, and **Terms of Use**.

3 Set the **Type** that best corresponds to the subcategory. The **Type** drop-down menu's options depend upon the **Category** setting.

4 Set the **Select Language** drop-down menu. Only languages based on the currently active locale are displayed. Select the **Add** button to add languages.

5 Select the **Default** check box if you want the template to be the default template for the selected **Category**.

6 Select the **Message Type** for the template. The options are **Email**, **SMS***, and **Push** notification.

7 Compose your **Email** message by entering text to the **Message Body** text box.

   - The **Plain Text** option features only a monospaced serif font (Courier) with no formatting options.
   - The **HTML** option enables a **Rich Text** editing environment including fonts, formatting, heading levels, bullets, indentation, paragraph justification, subscript, superscript, image, and hyperlink capability. The HTML environment supports basic HTML coding using the **Show Source** button which you can use to toggle between the **Rich Text** and source views.

8 Save your template by selecting the **Save** button.

* In order for SMS notifications to work with your device fleet, you must have an account with a 3rd party Gateway provider and configure the Gateway settings. Navigate to **Groups & Settings > All Settings > System > Enterprise Integration > SMS** and complete the options described in SMS Settings.

Configure Lifecycle Notifications

Lifecycle Notifications enable you to deliver customized messages after specific events during the lifecycle of a device, including enrollment and unenrollment.

This optional setting can be configured by navigating to **Devices > Lifecycle > Settings > Notifications** and entering the following options for the following sections.

- **Device Unenrolled** - Send an email notification when a device unenrolls.
- **Device Enrolled Successfully** - Send an email notification when a device enrolls successfully.
- **Device Blocked by Enrollment Restriction** - Send an email notification if an enrollment restriction blocks a device. You can configure this behavior by navigating to **Groups & Settings > All Settings > Devices & Users > General > Enrollment** and selecting the **Restrictions** tab.

Setting	Description
Send Email To.	■ **None** – Send no confirmation email upon a successful device block, enrollment, or unenrollment. ■ **User** – Send a confirmation email to the device user informing them of the successful device block, enrollment, or unenrollment. ■ **CC** - Send the same confirmation email to a single email address or multiple, comma-separated email addresses. ■ **Message Template** – Select the desired message template from the drop-down listing. You can add a new message template or edit an existing template by selecting the "Click here..." hyperlink that takes you to the **Devices & Users > General > Message Templates** settings page. ■ **Administrator** – Send a confirmation email to the Workspace ONE UEM administrator informing them of the successful device block, enrollment, or unenrollment. ■ **To** – Send the same confirmation email to a single email address or multiple, comma-separated email addresses.

Configure Enrollment Options on Customization Tab

You can provide an extra level of end-user support, including email and phone number, by configuring the **Customization** tab. Such a support level is valuable when users are unable to enroll their device for any reason.

The Customization tab can be found by navigating to **Devices > Device Settings > Devices & Users > General > Enrollment**.

Setting	Description
Use specific Message Template for each Platform	If enabled, you can select a unique message template for each platform. The provided link displays the Message Template page, allowing you to begin creating templates immediately. Workspace ONE ™ Direct Enrollment supports platform-specific message templates.
Enrollment Support Email	Enter the support email address.
Enrollment Support Phone	Enter the support phone number.
Post-Enrollment Landing URL (iOS only)	You can provide a post-enrollment landing URL that the end user is brought to upon a successful enrollment. This URL can be a company resource, such as a company website or login screen leading to more resources. Workspace ONE Direct Enrollment supports post-enrollment landing URLs.

Setting	Description
MDM Profile Message (iOS only)	For iOS devices only, this text box is for a message that appears during enrollment. You can specify a message with a maximum of 255 characters. Workspace ONE Direct Enrollment supports iOS-only MDM profile messages.
Use Custom MDM Applications	Displays a link which opens the App Groups Listing page. This link is labeled **Application Groups**. Workspace ONE Direct Enrollment supports custom MDM apps.

Denylist and Allowlist Device Registrations

A denylist is an explicit listing of devices or apps that are not allowed. An allowlist is a listing of devices or apps that are only allowed. Apply this concept to registration and you can control which devices are allowed to enroll in Workspace ONE UEM powered by AirWatch.

For example, in a deployment of only corporate-owned devices, you can create an allowlist of approved iOS devices. You can base this list of devices by International Mobile Equipment Identity (IMEI), Serial Number, or Unique Device Identifier (UDID). This way, enrollment is restricted to only those devices you have identified and enrollment by employee personal devices can be prohibited.

In addition, if a device is lost or stolen, you can add its IMEI, Serial Number, or UDID information to a list of denylisted devices. Denylisting a device unenrolls the device, removes all MDM profiles, and prevents enrollment until you remove the denylist.

A user's registration record is updated with the device information after enrollment. When the device is unenrolled, any other user trying to enroll the same device is blocked from enrollment until the registration record for the previous user is deleted.

Add a Denylisted or Allowlisted Device

You can add a denylisted (device restricted from enrollment) or allowlisted (device cleared for enrollment) based on various device attributes.

Note Denylisting devices that are registered in the Device Enrollment Program (DEP) restricts those devices from having a DEP profile assigned to them in the future.

1 Navigate to **Devices > Lifecycle > Enrollment Status** and select **Add**.

2 Select **Denylist Devices** or **Allowlist Devices** from the **Add** drop-down menu and complete the settings.

Setting	Description
Denylisted/ Allowlisted Devices	Enter the list of allowlisted or denylisted devices (by the Device Attribute selection), up to 30 at a time.
Device Attribute	Select the corresponding device attribute type. Select IMEI, Serial Number, or UDID.
Organization Group	Confirm to which Organization Group the devices are denylisted or allowlisted.

Setting	Description
Ownership	You can allow devices only with the selected ownership type. This option is only available while Allowlisting devices.
Additional Information	Allows you to select a platform to apply your allowlist or denylist.
Platform	You can denylist or allowlist all devices belonging to an entire platform. This option is only available when the **Additional Information** check box is enabled.

3 Select **Save** to confirm the settings.

Device Registration

Registering corporate devices is optional and the main benefit of this option is to restrict enrollment in Workspace ONE UEM to registered devices only.

Benefits to Registration

In addition to restricting enrollment to registered devices, another benefit is tracking enrollment statuses, which let you know which of your users have enrolled and which have yet to enroll. You can then notify those users who have not yet enrolled.

Workspace ONE UEM can successfully register devices even when device identifiers are missing during the data entry phase, by users or administrators.

A third advantage to registering devices before enrollment is security. A registered device expects the user logging in for the first time to be the same individual it was registered to. If a different user attempts to log in to a registered device, the device is locked out and unable to enroll.

Enrollment Considerations

If you want to proceed with registering devices before enrollment, consider the following.

Who Will Register Devices?

An important consideration when registering devices is deciding who performs the actual device registration.

- What is the total number of devices in your deployment? In large deployments of thousands of devices, you can add this information to a CSV (comma-separated values) file. You then upload this file before devices are provisioned. See the sections on this page entitled **Register an Individual Device** and **Register Multiple Devices**.
- Do you support a BYOD program where employees can use their personal devices? If you opt to restrict enrollment to only registered devices, you can give employees instructions on how to register their own devices. See the next section on this page entitled **End-User Device Registration Through the SSP**.

End-User Device Registration Through the SSP

You can direct end users to register their own devices before enrolling into Workspace ONE UEM if you are supporting BYOD. You can also require users with corporate owned devices to register if you want to track enrollment or use registration tokens. In either case, you must notify your end users of the process they need to follow.

The following instructions assume that the end user has Workspace ONE UEM credentials, either from their existing directory service credentials or from a previously activated User Account. If you opted for enrolling with directory services without manually adding users, you will not have any user accounts already created.

In this case, if you want end users to register devices, you must send an email or intranet notification to each user group outside of Workspace ONE UEM with the registration instructions. Ensure that enrollment authentication is enabled for Active Directory or Authentication Proxy by navigating to **Devices > Device Settings > Devices & Users > General > Enrollment > Authentication**.

Verify that the setting **Deny Unknown Users** is deselected by navigating to **Devices > Device Settings > Devices & Users > General > Enrollment > Restrictions**.

- Send an email or intranet notification to users outside of Workspace ONE UEM with the registration instructions.
- Create user accounts that allow all end users to register their devices, and then send user account activation messages to each user containing the registration instructions.

Include these five steps in the registration message you send to end-users, and they are given what they require to register their own devices.

1 Navigate to the Self-Service Portal (SSP) URL: **https://<UEM_Environment>/MyDevice**, where <UEM_Environment> is the enrollment URL for your environment.

2 Log in by entering the **Group ID** and credentials (either an email address or user name and password).

  These credentials can match the directory service credentials for directory users.

3 Select **Add Device** to open the **Register Device** form.

4 Enter the device information by completing the required text boxes in the **Register Device** form.

5 Submit and register the device by selecting **Save**.

Restrict Enrollment to Registered Devices Only

At this point, regardless of whether administrators or end users have registered devices, you can restrict enrollment to only registered devices. To do this, navigate to **Devices > Device Settings > Devices & Users > General > Enrollment** and select **Registered Devices Only**.

Track Enrollment Status

Occasionally, you might need to troubleshoot device registration, or track the stage of the overall enrollment process. End users might accidentally delete the message containing registration instructions, or they might not redeem an authentication within the allotted expiration time.

Once devices are registered, you can track enrollment statuses by navigating to the **Device Dashboard** page and selecting the **Enrollment** chart, which lets you filter based on enrollment status. You can also access the Monitor, which lists devices recently enrolled.

Manage enrollment status by accessing the Enrollment Status page at **Devices > Lifecycle > Enrollment Status**. Track the enrollment status of devices by sorting the **Enrollment Status** column in the listing or by filtering the list view by **Enrollment Status**.

Using the Enrollment Status page, you can produce a custom list of registered (but unenrolled) devices, select all devices in this custom list, and resend the enrollment instructions. If enough time elapses and a device fails to enroll, you can opt to reset (or even revoke) their registration token.

For more information, see Enrollment Status.

User Group Synchronization During Enrollment

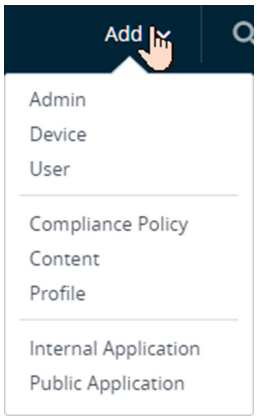
If you intend to organize your application assignments, device profile assignments, compliance policy assignments, or user mappings around user groups, then consider keeping the User Group Sync setting enabled which is its default setting. This setting causes Workspace ONE to make a real-time call to the authentication server each time a device record is created.

For more information, see the **User Group Sync** section in Configure Enrollment Options on Grouping Tab.

Register an Individual Device

When you have a small number of devices to register, you can register devices individually.

1 Select the **Add** button, which can be found in the top-right quadrant of almost any screen in the Workspace ONE UEM console. When selected, the button displays a drop-down menu with multiple options.



2 Select **Device**.

The **Add Device** page displays.

3 Complete the options according to your needs, starting with the **User** tab.

Setting	Description
User Section	
Search Text	Search for the user by entering a search parameter and select the **Search User** button. On a successful search, select the user account for whom you are registering the device. Several pre-populated text boxes display including Security Type, User Name, Password, and Email Address. You can edit these text boxes by displaying advanced user details.
Device Section	
Expected Friendly Name	Enter the Friendly Name of the device. This text box accepts **Lookup Values** which you can insert by selecting the plus sign. For details, see Chapter 12 Lookup Values.
Organization Group	Select the Organization Group to which the device belongs.
Ownership	Select the ownership level of the device.
Platform	Select the platform of the device.
Show advanced device information options	Display advanced device information settings.
Model	Select the device model. This drop-down menu option depends upon the **Platform** selection.
OS	Select the device operating system. This drop-down menu option depends upon the **Platform** selection.
UDID*	Enter the device unique device identifier.
Serial Number* ‡	Enter the serial number of the device.
IMEI*	Enter the device international mobile station equipment identity number.
SIM*	Enter the subscriber identity module for the device.
Asset Number*	Enter the device asset number.
Messaging Section	
Message Type	The type of notification sent to the user once the device is added. Select from **None**, **Email**, or **SMS***. The Email option requires a valid email address. You must also select an Email Message Template. The SMS option requires a phone number including country code and area code. SMS charges may apply. You must also select an SMS Message Template.
Email Address	Required for the Email Message Type.
Email Message Template	Required for the Email Message Type. Select a template from the drop-down menu. View the Email message with the **Message Preview** button.

Setting	Description
Phone Number	Required for the SMS* Message Type.
SMS Message Template	Required for the SMS* Message Type. Select a template from the drop-down listing. View the SMS message with the **Message Preview** button.

* In order for SMS notifications to work with your device fleet, you must have an account with a 3rd party Gateway provider and configure the Gateway settings. Navigate to **Groups & Settings > All Settings > System > Enterprise Integration > SMS** and complete the options described in SMS Settings.

* Among these denoted settings, at least one is required to register a device.

‡ To register a Windows Desktop device, you must enter the serial number of the device.

4 (Optional) Complete the **Custom Attributes** tab.

Setting	Description
Add	Add a custom **Attribute** and its corresponding **Application** and **Value** by selecting this button. In order to use the custom attribute feature while adding a device, you must have a custom attribute already created. Accomplish this by visiting Chapter 5 Custom Attributes.
Application	Select the application that gathers the attribute.
Attributes	Select the custom attribute from the drop-down menu.
Value	Select the value of the custom attribute from the drop-down menu.

5 (Optional) Complete the **Tags** tab.

Setting	Description
Add	Add a **Tag** to the device.
Tag	Select the Tag from the drop-down menu of existing Tags.

6 Select **Save** to complete the device registration process.

Results: The device is now registered to the selected Workspace ONE UEM user account specified in step 3.

What to do next: Deliver this device to this user so they can log in and complete the enrollment process. If another user attempts to log into this device before the registered user, the device is locked out and unable to enroll.

Register Multiple Devices

If you have hundreds or even dozens of devices to register, the Batch Import process is the way to go.

1 Navigate to **Accounts > Users > List View** or **Devices > Lifecycle > Enrollment Status**.

   a Select **Add** and then **Batch Import** to display the **Batch Import** screen.

2 Complete each of the required options: **Batch Name**, **Batch Description**, and **Batch Type**.

   Within the **Batch File (.csv)** option is a list of task-based templates you can use to load users and their devices in bulk.

3 Select the appropriate download template and save the comma-separated values (CSV) file to somewhere accessible.

4 Locate the saved CSV file, open it with Excel, and enter all the relevant information for each of the devices that you want to import.

   Each template is pre-populated with sample entries demonstrating the type of information (and its format) intended to be placed in each column. Fields in the CSV file denoted with an asterisk (*) are required.

5 Save the completed template as a CSV file. In the UEM console, select the **Choose File** button from the **Batch Import** screen, navigate to the path where you saved the completed CSV file and select it.

6 Select **Save** to complete registration for all listed users and corresponding devices.

Registration Tokens

If you restrict an enrollment to registered devices only, you also have the option of requiring a registration token. This option increases security by confirming that a particular user is authorized to enroll.

You can send an email or SMS message with the enrollment token attached to users with Workspace ONE UEM accounts.

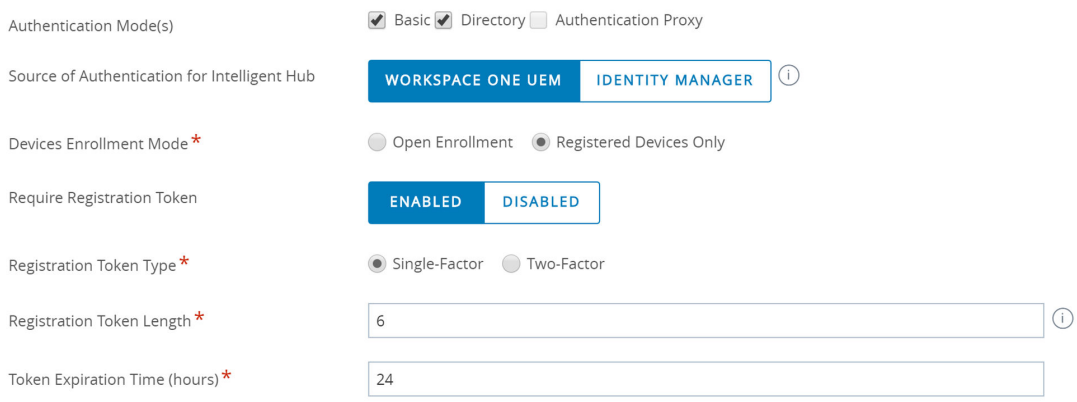
Note In order for SMS notifications to work with your device fleet, you must have an account with a 3rd party Gateway provider and configure the Gateway settings. Navigate to **Groups & Settings > All Settings > System > Enterprise Integration > SMS** and complete the options described in SMS Settings.

Enable Registration Token

1 Enable a token-based enrollment by selecting the appropriate organization group. Navigate to **Devices > Device Settings > Devices & Users > General > Enrollment** and ensure that the **Authentication** tab is selected.

2 Scroll down past the **Getting Started** section and select **Registered Devices Only** as the **Devices Enrollment Mode**.

A toggle labeled **Require Registration Token** appears. Enabling this option restricts enrollment to only token-registered devices.



3 Select a **Registration Token Type**. Chroose from the following.

- **Single-Factor** – The token is all that is required to enroll.
- **Two-Factor** – A token and login with user credentials are required to enroll.

4 Set the **Registration Token Length**.

This required setting denotes how complex the Registration Token is and must contain a value between 6–20 alphanumeric characters in length.

5 Set the **Token Expiration Time** (in hours).

This required setting is the amount of time an end user must select a link and enroll. Once it expires, you must send another link.

Generate a Token

You must generate and send a registration token, which is a highly secure method of enrolling a mobile device. There are two ways to generate a token: through the **UEM Console** or through the **Self-Service Portal**.

UEM Console	Self-Service Portal
1 Navigate to **Accounts > Users > List View** and select **Edit User** for a user. The Add / Edit User page displays. 2 Scroll down and select a **Message Type.** Choose from the following. ■ **Email** for directory users ■ **SMS** for basic user accounts 3 Select a **Message Template**. Next, select **Save and Add Device**. The **Add Device** screen displays. You can use the default template or create a template by selecting the link underneath that opens the **Message Template** page in a new tab. 4 Review **General** information about the device and confirming information about the **Message** itself. Once finished, select **Save** to send the token to the user using the selected message type. **Note** The token is not accessible through the UEM console for security.	1 Log in to the Self-Service Portal. If you are using single sign-on or smartcards for authentication, you can log in from a device or a computer. Directory users can log in using their directory service credentials. 2 Select **Add Device**. 3 Enter the device information (friendly name and platform) and any other details by completing the settings in the **Register Device** form. Ensure that the email address and phone number are present and accurate as they might not automatically populate. 4 Select **Save** to send the enrollment token to the user using the selected message type. **Note** The token is not shown on this page and only appears in the message that is sent. As a security feature, the following changes have been made for accounts that have enrolled with a token. ■ Email Address and Phone Number on both the **Add Device** screen and **Account** screen have been made read-only. ■ The View Enrollment Message action has been removed.

Instructions for End Users to Enroll with a Token

Your end users can use a registration token to enroll a device which is a highly secure authentication method.

1 Open the SMS or email message on the device and select the link that contains the enrollment token. If an enrollment page prompts for a Group ID or token, enter the token directly.

2 Enter a user name or password if two-factor authentication is used.

3 Continue with your enrollment as usual.

Result: Once complete, the device is associated with the user for which the token was created.

What to do next: Once the MDM profile is installed on the device, the token is considered "used" and cannot be used to enroll other devices. If the enrollment was not completed, the token can still be used on another device. If the token expires based on the time limit you entered, you must generate another enrollment token.

Missing Device Identifiers During Registration

If no device identifier is specified during registration (such as UDID, IMEI, and Serial Number), Workspace ONE UEM uses these attributes to match an enrolled device to its registration record automatically.

When inadequate registration information is provided, the following ranking allows Workspace ONE UEM to register devices successfully.

1 User to whom the device is registered.

2 Platform (if specified).

3 Model (if specified).

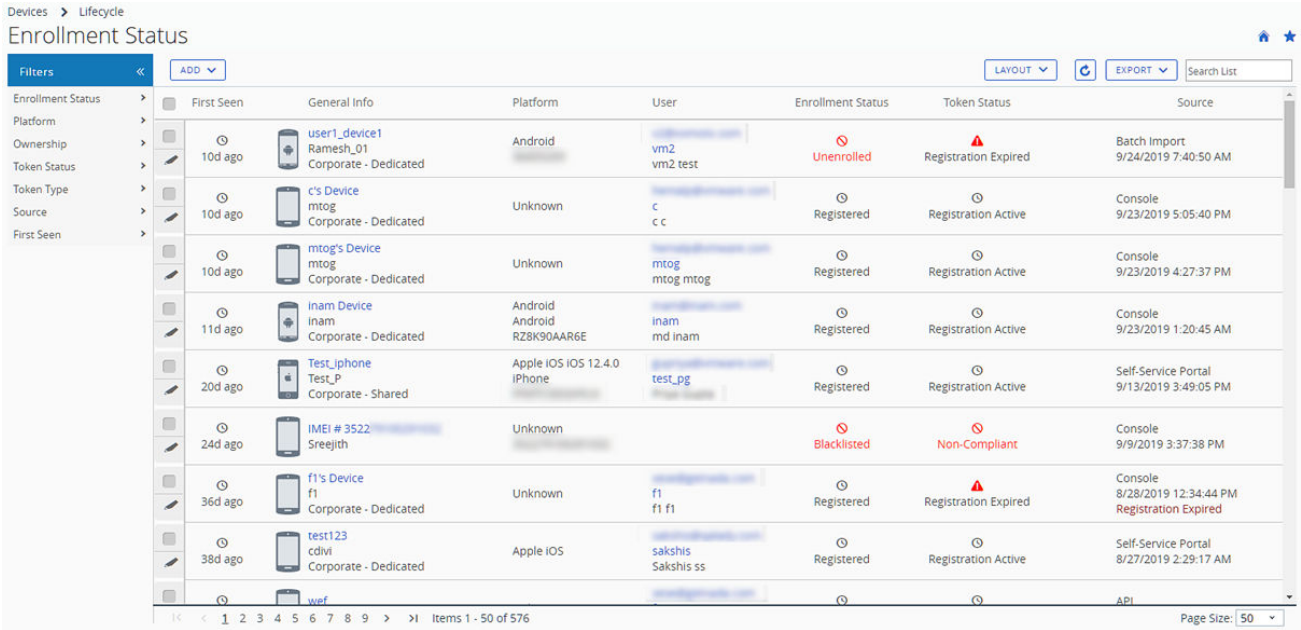
4 Ownership type (if specified).

5 Date of the oldest-matching registration record.

Enrollment Status

You can assess enrollment status on a per-device basis in Workspace ONE UEM powered by AirWatch, import and register devices in bulk, allowlist/denylist devices, and revoke/reset device tokens by reviewing the Enrollment Status.

Select **Devices > Lifecycle > Enrollment Status** to see a full list of all devices by enrollment status in the currently selected organization group.



Sort by columns and configure information filters to review device activity based on specific information. For example, sort by the **Token Status** column to view only devices whose registration is not applicable and act only on those specific devices. Search all devices for a friendly name or user name to isolate one device or user.

Setting	Description
Filters	You can filter out entire device categories by using filters which enable you to see only those devices that you are interested in. ■ **Enrollment Status** ■ **Platform** ■ **Ownership** ■ **Token Status** ■ **Token Type** ■ **Source** ■ **First Seen**
Add	■ **Register Device** – You can register or **Add** a single device to be enrolled. ■ **Allowlist or Denylist Devices** – You can allow only those devices to enroll that you have identified or allowlisted. Alternatively, you can restrict devices from an enrollment by denylisting devices. ■ **Batch Import** – Import multiple devices or multiple users with the Batch Import screen.
Resend Message	Resend the original message sent to a user, including Self-Service Portal URL, Group ID, and login credentials.
More Actions	
Change Organization Group	Move the selected device to the organization group of your choosing.
Change Ownership	Change the type of ownership for the selected device.
Delete	Permanently delete the registration information for selected devices. This action forces the user to re-register to enroll. Where applicable, you must first revoke the token before deleting a device registration.
Reset Token	Reset the status of a token if it has been revoked or is expired.
Revoke Token	Force the registration token status of selected devices to expire, essentially blocking access for unwanted users or devices. For the **Reset Token** and **Revoke Token** actions, you can select to disable the **Notify Users** setting which prevents the default email notification from being sent.
Selecting Multiple Devices	Act on individual devices or multiple devices by selecting the check box next to each device and using the action buttons. Once you have applied a filter to show a specific set of devices, you can perform bulk actions to multiple selected devices. Perform this action by selecting the devices and selecting an action from the **Resend Message** and **More Actions** buttons. You can select individual check boxes. You can also select the entire set of filtered devices by selecting the global check box located atop the check box column. When you select an action for one or more devices, a confirmation screen displays allowing you to **Save** or **Cancel** the action.
Layout	Display the full listing of visible columns or choose to display or hide columns per your preferences by selecting the **Custom** option. There is also an option to apply your customized column view to all administrators at or below the current organization group. You can return to the **Layout** button settings at any time to modify your column display preferences.

From the **Details View**, you can resend the enrollment message by selecting the **Resend Message** button. You can also edit a device registration info by selecting the **Edit Registration** button and completing the **Advanced Device Information** section.

The **Details View** displays a series of tabs, each containing relevant enrollment information about the device.

- **Summary** – View the registration date, time elapsed since the device was first seen, basic device and user info.
- **User** – View user details.
- **Message** – View the outgoing Device Activation email message including credential information and QR code. There is a resource available, called "User Registration Message," that allows the administrator to hide the **Message** tab after the device has successfully enrolled.
- **Custom Attributes** – View the Custom Attributes associated with the device.
- **Tags** – View the tags currently associated with the device.
- **Offline Enrollment** – If available, this tab allows you to enroll the device while it is offline. This feature is useful for when you want to use the device while offline (for example, while traveling).

Self-Enrollment Versus Device Staging

Workspace ONE UEM supports two methods for enrolling corporate devices. You can let users enroll their own devices or administrators can enroll devices on users' behalf in a process called **device staging**.

In device staging, an administrator enrolls devices before assigning them and distributing them to end users. This method is useful for administrators who must set up devices shared by multiple users across an organization.

Device staging can be performed for Android, iOS, and macOS devices.

Consideration #1: Device Ownership

- Do your end users already have assigned corporate devices? In this case, it may not be practical to collect each device and have it staged and instead have users enroll themselves.
- Are your end users sharing devices or do they have their own dedicated devices? If end users are not sharing devices, then you can make it the responsibility of that device's single owner to enroll themselves.

  Also, device staging works well for newly provisioned devices, since it happens before an employee receives the device. If your end users already have corporate devices, then allowing them to self-enroll makes the most sense. Letting users enroll their own devices is also beneficial when the total number of devices makes it impractical for administrators to perform device staging.

Consideration #2: Auto Discovery

Are you associating your organization's email domain with your Workspace ONE UEM environment? This process, known as an **auto discovery**, means that end users need only enter email address and credentials. The enrollment URL and Group ID are automatically entered.

See also Autodiscovery Enrollment.

Consideration #3: Workspace ONE Direct Enrollment

Device staging through Workspace ONE Direct Enrollment is not supported. If you must stage a device, whether for single or multiple users, you must enroll the device using Workspace ONE Intelligent Hub instead of Workspace ONE Direct Enrollment.

Workspace ONE Direct Enrollment is a feature that fits well with self-enrollment. Once enabled, all qualified devices that log into the enrollment organization group are immediately enrolled. And once fully installed, the end user can agree to install apps selected by the company or to opt out of installing apps.

For more information, see Workspace ONE Direct Enrollment.

Consideration #4: Are You Participating in Apple's Device Enrollment Program?

To maximize the benefits of Apple devices enrolled in Mobile Device Management (MDM), Apple has introduced the Device Enrollment Program (DEP). With DEP, you can perform the following.

- Install a non-removable MDM profile on a device, preventing end users from deleting it.
- Provision devices in Supervised mode (iOS only). Devices in Supervised mode can access additional security and configuration settings.
- Enforce an enrollment for all end users.
- Meet your organization's needs by customizing and streamline the enrollment process.
- Prevent iCloud back up by disabling users from signing in with their Apple ID when generating a DEP profile.
- Force OS updates for all end users.

Consideration #5: Use of Apple Configurator

Apple Configurator enables IT administrators to deploy and manage Apple iOS devices effectively. Organizations such as retail stores, classrooms, and hospitals find it especially useful to pre-enroll devices for multiple end users to share.

Using Configurator to enroll pre-registered devices meant for a single user is supported by adding serial number/IMEI information to a user's registered device in the Console. A major benefit of Apple Configurator is that you can use a USB hub or iOS device cart to provision multiple devices in minutes.

Consideration #6: Single User Staging or Registration?

If you are considering staging devices for a single user, registration might be preferred. The difference between staging for a single user and registering a device is subtle but important.

Registration – When you register a device, you do so for an individual, named user. This procedure means that the device expects the first user who logs in to be the same user to whom it was registered. If another user attempts to log in to a registered device, security purposes dictate that the device is locked out and cannot be enrolled.

Single User Staging – When you stage a device, you do so for any user qualified to enroll in Workspace ONE UEM. In theory, you might hand a staged device to any qualified user, and that user might successfully log in to the device and enroll in Workspace ONE UEM.

The staging workflow allows you to prepare the device and then start the Workspace ONE Intelligent Hub, where any qualified enrollment user can log in. Workspace ONE UEM then performs a one-time reassignment to associate the device to that user.

Consideration #7: Use of Device Staging

Unless you are using Apple Configurator, administrators must stage devices one-by-one. For large deployments, consider the time and staffing this effort requires.

Whereas administrators can stage new devices easily, employees already using corporate-owned devices must ship devices in or collect them on-site to have devices staged.

If you have thousands of devices to pre-enroll, device staging can take time. Therefore it works best when you have a new batch of devices being provisioned, since you can gain access to the devices before employees receive them.

Device staging can be performed for Android and iOS devices in following ways.

- **Single User (Standard)** – Used when you are staging a device which any user can enroll.

  Note As indicated, this enrollment flow is intended for unattended devices. If you are using this flow for zero touch user enrollment, you are responsible for ensuring that staged devices are delivered to the intended user.

- **Single User (Advanced)** – Used when you are staging and enrolling a device for a particular user.

  Note The staging user/administrator must ensure that the device is checked out to the registered user.

- **Multi User** – Used when you are staging a device to be shared among multiple users.

Stage a Single-User Device

Single-User Device Staging on the Workspace ONE UEM console allows a single administrator to outfit devices for other users on their behalf, which can be useful for IT administrators provisioning a fleet of devices.

Device staging through Workspace ONE Direct Enrollment is not supported. If you must stage a device, whether for single or multiple users, you must enroll the device using Workspace ONE Intelligent Hub instead of Workspace ONE Direct Enrollment.

Important The ability to create staging users is an elevated admin privilege. Permission to create a staging user should be limited only to specific, trusted administrators. Also, treat staging user credentials as you would any other admin privilege and do not disclose the user credentials.

Currently, any administrator with the permission to create a user can also create a staging user. Limit this ability by editing the roles assigned to your administrators. Navigate to **Accounts > Administrators > Roles**. Identify only those roles you want to limit and then **Edit** () each of these roles in the category path **All > Accounts > Users > Accounts** by clearing the **Edit** check box from the "Add/Edit" permission.

Note LDAP binding is required when staging devices. To create this payload, see Binding a Device to the Directory Service in this guide.

1 Navigate to **Accounts > Users > List View** and select **Edit** for the user account for which you want to enable device staging.

2 In the **Add / Edit User** page, select the **Advanced** tab.

   a Scroll down to the **Staging** section.

   b For **Enable Device Staging**, select the **Enabled** slider. The staging options display.

   c For **Single User Devices**, select the **Enabled** slider.

   d Toggle the type of single user device staging mode to either **Standard** or **Advanced**.

   Standard staging requires an end user to enter login information after staging, while Advanced means that the staging user can enroll the device on behalf of another user.

   e Ensure that **Multi User Devices** is set to **Disabled**.

   f For **Android Shared Device Mode**, select **Native** or **Launcher** for the check in and check out mode. Native Android supports simpler use cases that do not require customization. Launcher supports UI customization for complex use cases.

   g For **System Apps**, you can enable end user access to system applications.

   h For **Admin Mode Passcode**, specify an alphanumeric passcode to troubleshoot a device in admin mode. Tap the Hub icon on the login screen 5 times to access admin mode.

   Result: Single User Devices stages devices for a single user.

3 Enroll the device. Choose from the following.

   - Enroll using the Workspace ONE Intelligent Hub by entering a server URL and Group ID.
   - Open the device's Internet browser, navigate to the enrollment URL, and enter the proper Group ID.

4 Enter your staging user's credentials during enrollment.

   a If necessary, specify that you are staging for **Single User Devices**.

      You will only have to do this if multi-user device staging is also enabled for the staging user.

5 Complete enrollment for either Advanced or Standard staging.

   a If you are performing Advanced staging, you are prompted to enter the user name of the end-user device owner who is going to use the device. Proceed with enrollment by installing the Mobile Device Management (MDM) profile and accepting all prompts and messages.

   b If you are performing Standard staging, then when the end user completes the enrollment, they are prompted to enter their own credentials in the login window.

Results: The device is now staged and ready for use by the new user. If an enrollment terms of use agreement is in place, the staging single-user will not see this TOU agreement prompt until they log into their SSP account.

Stage a Multi-User Device

Multi-user device/shared device staging allows an IT administrator to provision devices intended to be used by more than one user. Multi-User staging allows the device to change its assigned user dynamically as the different network users log into that device.

Device staging through Workspace ONE Direct Enrollment is not supported. If you must stage a device, whether for single or multiple users, you must enroll the device using Workspace ONE Intelligent Hub instead of Workspace ONE Direct Enrollment.

1 Navigate to **Accounts > Users > List View** and select **Edit** for the user account for which you want to enable device staging.

2 In the **Add / Edit User** page, select the **Advanced** tab.

   a Scroll down to the **Staging** section.

   b For **Enable Device Staging**, select the **Enabled** slider. The staging options display.

   c Ensure that **Multi User Devices** is set to **Enabled**.

   d For **Android Shared Device Mode**, select **Native** or **Launcher** for the check in and check out mode. Native Android supports simpler use cases that do not require customization. Launcher supports UI customization for complex use cases.

   e For **System Apps**, you can enable end user access to system applications.

   f For **Admin Mode Passcode**, specify an alphanumeric passcode to troubleshoot a device in admin mode. Tap the Hub icon on the login screen 5 times to access admin mode.

3 Enroll the device using one of the two following methods.

   - Enroll using the Workspace ONE Intelligent Hub by entering a server URL and Group ID.

- Open the device's Internet browser, navigate to the enrollment URL, and enter the proper Group ID.

4 Enter your staging user's credentials during enrollment. If necessary, specify that you are staging for **Single User Devices**.

   You must do this only if multi-user device staging is also enabled for the staging user.

Result: The device is now staged and ready for use by the new users.

Self-Enrollment Process

Self-enrollment can require that end users know their appropriate Group ID and login credentials. If you have integrated with directory services, these credentials are the same as the user's directory service credentials.

You can also associate your organization's email domain with your Workspace ONE UEM environment in a process known as auto discovery. With auto discovery enabled, devices of supported platforms prompt end users to enter their email address. These devices automatically complete enrollment if their email domain (the text after @) matches – without the need to enter a Group ID or enrollment URL. For more information, see Autodiscovery Enrollment.

1 End users navigate to AWAgent.com, which automatically detects whether the Workspace ONE Intelligent Hub is installed.

   If Workspace ONE Intelligent Hub is not installed, the Website redirects to the appropriate mobile app store.

2 AirWatch Container users download the AirWatch Container app from the app store.

3 After launching the Workspace ONE Intelligent Hub or Container app, users enter their credentials – in addition to either an email address or URL/Group ID – and proceed with enrollment.

Supervised Mode

Administrators have the option of enabling Supervised Mode for devices enrolled through Apple Configurator, which enables additional enhanced security features. However, this mode does introduce several limitations on the device.

Enable Supervised Mode

For more information about enabling devices to operate in Supervised Mode, see the Integrate with Apple Configurator 2 Guide.

Benefits

Once a device is supervised and enrolled in Workspace ONE UEM, the administrator has the following enhanced features available for configuration when compared to normal devices.

- **Elevated Restrictions over MDM**
  - Prevent User from Removing Applications. Removing applications can also be restricted locally on the device using restrictions under System Configuration.

    - Prevent AirDrop.
    - Prevent users from modifying iCloud and Mail account settings which prevents account modification.
    - Disable iMessage.
    - Set iBookstore Content rating restrictions.
    - Disable Game Center and iBookstore.
- **Enhanced Security**
    - Prevent end users from visiting websites with adult content in Safari.
    - Restrict which devices can connect to specified AirPlay destinations, such as Apple TVs.
    - Prevent the installation of certificates or unmanaged configuration profiles.
    - Force all device network traffic through a global HTTP proxy.
- **Kiosk Mode**
    - Lock down devices to one app with single app mode and disable the home button.
- **Customize Wallpaper and Text on Device**
- **Enable or Clear Activation Lock**

Limitations

- USB Access to supervised devices is restricted to the supervising Mac.
- Cannot copy data to and from the device using iTunes unless the Apple Configurator identity certificate is installed on the device.
    - Media such as photos and videos cannot be copied from the device to a PC or Mac. To transfer this type of data, use the VMware Content Locker to sync the content with the user's Personal Documents section. Alternatively, a file sharing application can be used to transfer the data over WLAN/WWAN to a server.
- Supervised mode prevents access to device-side logs using the iPhone Configuration Utility (IPCU).
    - This mode makes it harder to troubleshoot any application or device issues. The reason for this difficulty is the logs from the device can only be obtained if the device is connected to the supervising Mac. To remediate some of the challenges, use the Workspace ONE SDK to send logs and logistics from the applications to the UEM console.
- Devices cannot be reset with factory settings easily.
    - Once a device is factory reset, it must be brought back to the supervising Mac to restore it back to supervised mode. This procedure may be problematic if the Mac is not near the device.

In deciding whether or not to enable Supervised Mode, consider the following. While it enables additional features that enhance security on the device, the USB limitations must be considered.

The proximity of the device to the supervising Mac plays an important role in the decisions. Since the USB limitation prevents access to device-side logs, a device experiencing issues must be shipped back to a depot and restaged to restore functionality.

Deciding on supervision in advance is important because the process to supervise or “unsupervise” requires the shipping of the device to an IT location or depot.

User Enrollment OG Precedence Order

The organization group (OG) that becomes a user's enrollment OG plays a special role in the management of devices and its users. There is a selection hierarchy that determines which OG becomes a user's enrollment OG.

The Organization Group that serves as a user's enrollment OG is selected according to the following precedence.

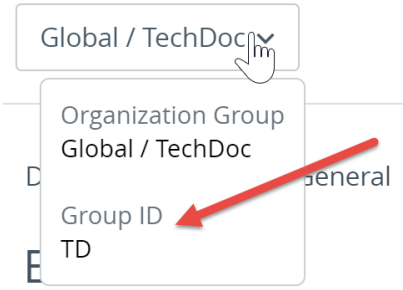
1. OG OF THE USER GROUP TO WHICH THE USER BELONGS

- Configure this option by navigating to **Groups & Settings > All Settings > Devices & Users > General > Enrollment**, and under the **Grouping** tab, select **Automatically Select Based on User Group** as the **Group ID Assignment Mode**. For more information, see Configure Enrollment Options on Grouping Tab.

If the above selection is not made or the user is not part of a user group, then the enrollment OG becomes the…

2. OG PROVIDED DURING ENROLLMENT

- Configure this option by navigating to **Groups & Settings > All Settings > Devices & Users > General > Enrollment**, and under the **Grouping** tab, select **Default** as the **Group ID Assignment Mode**.
  - You must then provide the name of the group ID the user must enter at enrollment time. Typically, this is communicated to users with an email that includes an enrollment URL.
  - You can obtain the group ID for the OG you are currently in by hovering your pointer over the OG selector and reviewing the resulting popup.



- Alternatively, you can let the user choose from a list of Group IDs. Enable this option by navigating to **Groups & Settings > All Settings > Devices & Users > General > Enrollment**, and under the **Grouping** tab, select **Prompt User to Select Group ID** as the **Group ID Assignment Mode**.
  - At enrollment time, the user is presented with a list of child OGs (belonging to the parent OG you are in) from which they select their Group ID (Enrollment OG). This option does not require you to perform group assignment mapping and users have the freedom to select any child OG from the list.

If group ID is not being communicated to the user before enrollment and the user is not part of a user group, then the enrollment OG becomes the…

3. OG ACCORDING TO THE AUTO DISCOVERY GROUP ID

- Configure this option by navigating to **Groups & Settings > All Settings > Devices & Users > General > Enrollment**, and under the **Authentication** tab, add an email domain that corresponds to the user's work email address. For more information on the **Authentication** tab, see Configure Enrollment Options.
  - At enrollment time, the user is prompted to enter their work email address. The user's device is automatically enrolled into the appropriate OG based upon the domain of the email address entered.

If none of the above is configured, then the enrollment OG becomes the…

4. OG SELECTED WHEN THE USER IS ADDED

- Configure this option when you add users in the Workspace ONE UEM console by navigating to **Accounts > Users > List View** and select **Add** followed by **Add User**. In the **Add/Edit User** screen that displays, scroll down and open the **Enrollment** section. Complete the **Enrollment Organization Group** option.
- Alternatively, if you select no OG in the **Enrollment** section of the **Add/Edit User** screen, the enrollment OG for the user becomes the OG you are in at the time you add the user.

Workspace ONE Direct Enrollment

Direct Enrollment in Workspace ONE UEM allows you to enroll your devices in the quickest manner possible.

Direct Enrollment represents the smoothest way to enroll devices that are corporate-owned and personally enabled (COPE). The COPE model offers businesses a way to strike a balance between the consumerization of devices and the security and control that IT needs.

As an administrator, you can configure Direct Enrollment with the options you want. These options include an optional prompt, restrict by device type, limit by user group, and defer the installation of apps to the user.

Enable Direct Enrollment for Workspace ONE

You can enable Workspace ONE ™ Direct Enrollment on the organization group (OG) of your preference. Once enabled, all qualified devices logging in for the first time to Workspace ONE UEM are directly enrolled. Unqualified devices that fall outside the criteria you define are enrolled in an unmanaged or container state.

Direct Enrollment is disabled by default. To enable Workspace ONE Direct Enrollment, take the following steps.

1 Switch to the organization group for which you want to enable Direct Enrollment for Workspace ONE.

2 Navigate to **Groups & Settings > All Settings > Devices & Users > General > Enrollment** and select the **Restrictions** tab.

3 If necessary, select to Override the parent OG's settings.

4 Scroll down to the **Management Requirements for Workspace ONE** and select your configuration options.

Setting	Description
Require MDM for Workspace ONE	Prompt qualified devices and users to be enrolled immediately upon login to Workspace ONE. Devices outside the defined criteria are allowed to enroll in an unmanaged state and can come under management later (Adaptive Management).
Assigned User Group	This setting specifies the user group you want to include in the direct enrollment process. You can also select **All Users** which are the default selection when you enable **Require MDM for Workspace ONE**.
iOS	Enable this setting to include iOS devices. Disabled makes iOS devices not eligible for direct enrollment, though they can still enroll into Workspace ONE UEM in an unmanaged state.

Setting	Description
Android Legacy	Enable this option to include legacy Android devices. Disabled makes legacy Android devices not eligible for direct enrollment, though they can still enroll into Workspace ONE UEM in an unmanaged state.
Android Enterprise	Enable this setting to include Android Enterprise devices. Disabled makes Android Enterprise devices not eligible for direct enrollment, though they can still enroll into Workspace ONE UEM in an unmanaged state.

Results: Only supported options configured on the other enrollment tabs apply to your saved direct enrollment configuration.

What to do next: Once Workspace ONE Direct Enrollment has been enabled, the next step is to **Enroll Your Device with Workspace ONE Direct Enrollment**. For more information about Direct Enrollment for Workspace ONE Options and Enrollment Options in general, see the other sections on this page.

Enroll Your Device with Workspace ONE Direct Enrollment

With Workspace ONE ™ Direct Enrollment enabled, logging into the enrollment organization group using a qualifying device and user with the Workspace ONE app means that you are immediately enrolled.

Your users are also given the chance to install apps immediately which your company finds useful. Alternately, they can skip this step in favor of installing the app later. To enroll a device with Workspace ONE Direct Enrollment, the end user takes the following steps.

1 Download, install, and run the Workspace ONE app from the platform-specific app store or repository.

2 Enter the server URL or email address.

3 Enter your directory services user name and password.

4 Install or enable **Workspace Services** by selecting affirmative steps specific to your platform.

   a **iOS** – allow the server to open **Settings**, enter your device passcode, install an unsigned device profile, and open a screen in Workspace.

   b **Android Legacy** – Install Workspace ONE Intelligent Hub, allow it to make and manage phone calls, select ownership for your device with an option to enter the device asset number, activate the device admin application, then sign into Workspace ONE.

   c **Android Enterprise** – Accept (or decline) the terms of use agreement, set up the work profile, and create the Workspace ONE passcode.

5 When Workspace ONE finishes the install routine, you can **Continue to install apps**.

6 You can install individual apps selected from a list, **Install all**, or **Skip** this step entirely.

Workspace ONE Direct Enrollment Supported Options

The Workspace ONE Direct Enrollment feature works with many of the existing enrollment options and platforms available before the feature's development.

Direct enrollment with Workspace ONE ™ supports the following platforms and enrollment options.

Supported Platforms

- iOS.
- Android Legacy.
- Android Enterprise.

Navigate to **Groups & Settings > All Settings > Devices & Users > General > Enrollment**, select each applicable tab, and make your selections based on compatibility with Workspace ONE Direct Enrollment.

Authentication

The following authentication options are compatible with Workspace ONE Direct Enrollment.

- Directory Users.
- SAML plus Active Directory Users are supported "on-the-fly". SAML without LDAP users is supported so long as the user record pre-exists in Workspace ONE UEM at the time of initial login.

  Basic Users, Staging Users, SAML without Directory Users, and Authentication Proxy users are not currently supported.
- Open Enrollment.
- Workspace ONE does not audit the Require Workspace ONE Intelligent Hub for iOS or macOS settings, which are used to block web enrollment on their respective platforms.

Terms of Use

All terms of use options are compatible with Workspace ONE Direct Enrollment.

Grouping

All grouping options are compatible with Workspace ONE Direct Enrollment.

Restrictions

The following restrictions options are compatible with Workspace ONE Direct Enrollment.

- Known Users and Configured Groups.
- Maximum Enrolled Device Limit.

- Policy settings are partially supported.
  - Allowed Ownership Types – Workspace ONE only prompts for employee-owned and Corporate Dedicated. If you do not want either, disable optional prompt and use the default ownership type.
  - Allowed Enrollment Types are not supported.
- Device Platform, Device Model, and OS Restrictions are supported.
- User Group Restrictions.

Optional Prompts

The following optional prompts options are compatible with Workspace ONE Direct Enrollment.

- Prompt for Device Ownership.
- Prompt for Asset Number (supported only when Prompt for Device Ownership is enabled).
- All other optional prompts are not supported.

Customization

The following customization options are compatible with Workspace ONE Direct Enrollment.

- Use specific Message Template for each Platform.
- Post-Enrollment Landing URL (iOS only).
- MDM Profile Message (iOS only).
- Use Custom MDM Applications.
- Enrollment Support Email and Enrollment Support Phone are not supported.

Staging

Device staging through Workspace ONE Direct Enrollment is not supported. If you must stage a device, whether for single or multiple users, you must enroll the device using Workspace ONE Intelligent Hub instead of Workspace ONE Direct Enrollment.

Device Profiles

10

Device Profiles are the primary means by which you can manage devices in Workspace ONE UEM powered by AirWatch. They represent the settings that, when combined with compliance policies, help you enforce corporate rules and procedures.

Create profiles for each platform type then configure a payload, which consists of the individual settings you configure for each platform type.

The process for creating a profile consists of first specifying the **General** settings followed by the **Payload** settings.

- The **General** settings determine how the profile is deployed and who receives it.
- The **Payload** for the profile is the actual restriction itself and other settings as applied to the device when the profile is installed.

This chapter includes the following topics:

- Profile Processing
- Add General Profile Settings
- Device Profiles List View
- Technical Preview: Profiles and Profile Resources Used in Workflows
- Device Profile Editing
- Compliance Profiles
- Profile Resources
- Geofence Areas
- Time Schedules
- View Device Assignment, Device Profile

Profile Processing

Device profiles provide a standardized foundation for device management under Workspace ONE UEM. The method used to process device profiles, including the retry logic when profile installations fail, is important to understand.

When a device profile gets assigned to devices, it undergoes the following process.

1 The profile is queued for installation.

2 The device connects with Device Services in order to receive the profile for installation.

- If the connection succeeds, the profile installation status becomes 'Pending'.
- If the connection fails, the profile is again queued for installation (step 1) at the next device check-in.

3 The device installs the profile.

- If the installation succeeds, the profile installation status becomes 'Processed'.
- If the installation fails, the profile is again queued for installation (step 1) at the next device check in.

Performance Tuning

The processing and publishing of device profiles, such as certificate-related profiles, represents a significant server strain and must be governed to relieve this strain. The Workspace ONE UEM console uses a batching logic for the most processor-intensive types of device profiles.

This batching logic can be adjusted by navigating to **Groups & Settings > All Settings > Installation > Performance Tuning**.

Setting	Description
Bulk Publish Commit Frequency	Profiles are pushed to the number of devices entered here per transaction. Minimum value is 1000. Maximum value is 50000. Default value is 40000.
Sample Scheduler Interval (minutes)	This setting determines how often the scheduler pulls a sample from the device, measured in minutes. Minimum value is 1. Maximum value is 1440 (24 hours). Default value is 5.
Minimum Sampling Interval (hours)	
iOS Device Invites Per Second	This is the number of iOS devices per second that are invited to check into the Device Services through an APNs outbound message. Minimum value is 4. Default value is 30. Recommended maximum value is 120.
Certificate Profile Publish Frequency	This is the maximum number of certificate profile install commands that can be published at any point in time for your entire environment. Default value is 50.
Number of Queue Commands (Max)	This is the maximum number of commands that the queue is allowed to have. Commands are published per the Certificate Profile Publish Frequency until they reach this limit. Once devices consume the commands, more commands are queued up. The value you enter here is multiplied by the 'Certificate Profile Publish Frequency' to get that max number. This number can be increased to improve certificate batching, however, you should consider closely monitoring CA and DS server performance. Default value is 10.
Certificate Queue Throttling	If the commands added per the Certificate Profile Publish Frequency are not consumed by the devices, the next batch is queued in 15 minutes by default. This time interval can be lowered to improve certificate batching, however, you should consider closely monitoring CA and DS server performance.

Setting	Description
Certificate Profile Manual Install Threshold	This is the maximum number of certificate profile install commands that can be queued from the dashboard per admin, per profile version. Default value is 100.
Maximum Apple API Calls Per Second (For Invitation of VPP Users)	Specifies the maximum number of calls per second that are made to the Apple VPP servers. Minimum value is 1. Maximum value is 1000. Default value is 30.
Run Real-Time Compliance	
Allow minutes as minimum compliance interval	Enable to create compliance policies and set compliance escalation actions to take place at a minute based interval. Depending on the number of devices enrolled in this environment, the performance of your system might be affected. Please consider these factors before enabling this option.
Batch Size for Internal Application Deployment	This value specifies the number of devices that are included in the batch for internal application deployment. Minimum value is 1. Maximum value is 10000. Default value is 100.
Mark app UEM command stale after	This per platform time limit defines how long after the last UEM command (acknowledged by the device but not yet executed) before the command is deemed "stale". Stale commands are retriggered once apps are published. The app catalog no longer displays apps in a "Processing" state to end users, opting instead to re-enable "Install" or "Update" actions.
MDM Application List Sample Interval (minutes)	Minimum value 1. Default value 480.
Windows app list sample base poll time (min)	Minimum value 1. Maximum value 1440. Default value 5.
Batch Size for VPP apps license sync	This setting specifies the number of apps included in each batch when they synchronize with the VPP cloud. Minimum value is 1. Maximum value is 250. Default value is 250.
Failed Application Install Retry Interval (Minutes)	This setting specifies how long to wait to attempt a reinstall of a failed application installation. Minimum value is 15. Maximum value is 10000. Default value is 60.
Max retry attempts for failed app install (Windows)	Specifies the maximum number of times to retry a failed installation. Minimum value is 0. Maximum value is 8. Default value is 5.
Device batch size for retrying failed installs	This setting specifies the maximum number of devices included in an attempt to reinstall a failed app installation attempt. Minimum value is 1. Maximum value is 15000. Default value is 10000.
Frequency for device-based VPP app auto updates (hours)	You have the ability to update device-based VPP applications automatically. This setting controls how often, measured in hours, these updates occur. Minimum value is 1. Maximum value is 24. Default value is 1.
App list size to check for app version updates	When the system checks for a new version of an app, this setting specifies the size of the list of apps that are checked. Minimum value is 20. Maximum value is 100. Default value is 20.

Setting	Description
Install Certificate Profiles Without Batching on Enrollment	Determines whether or not certificate profile commands are sent in batches. When enabled, batching logic on certificate profile install commands for new enrollments is skipped. When disabled, batching logic on certificate profile install commands for new enrollments is applied.
Sync interval (hours) for VPP license counts at an organization group	This is the minimum amount of time, in hours, that the scheduler spends selecting an organization group to run the Sync License Count. Minimum value is 2. Maximum value is 24. Default value is 6.
Number of organization groups per batch when syncing VPP license counts	This is the number of organization groups the scheduler can select each time it runs the job to synchronize VPP license count. Minimum value is 1. Maximum value is 50. Default value is 10.
Automatic Delete Factory PPKG	When enabled, the product provisioning package that is uploaded to the device is automatically deleted, saving device storage space. When disabled, the PP package is kept on the device.
Days After Which PPKGs Will Be Deleted	This setting is available only when **Automatic Delete Factory PPKG** is enabled. This setting determines how many days elapse before the PPKG file is removed from the device. Minimum value is 0 (immediate deletion). Maximum value is 90. Default value is 5.
Product Provisioning AWCM Throttle Rate	Represents the number of AirWatch Cloud Messenger (AWCM) notifications sent per second. Align this throttle rate with the **Product Provisioning Command Release Batch Size** per the included **Product Provisioning Sizing** table . Minimum value is 1. Maximum value is 100. Default value is 2.
Product Provisioning Command Release Batch Size	Product provisioning commands are created in a held state. This setting represents the number of commands released from the device command queue per batch release job interval. The scheduler task called "Product Provisioning Batch Release Job" (found in **Groups & Settings > All Settings > Admin > Scheduler**) controls how often the command queue is released. This setting controls how many commands per interval are released and is aligned with the **Product Provisioning AWCM Throttle Rate**. Both settings are based on the number of Device Services (DS) servers in your environment, as detailed in the **Product Provisioning Sizing** table. Minimum value is 1. Maximum value is 10000. Default value is 200.
Apple Profile Installation Batch Size	This value sets the number of profile commands that are added to the command queue per batch. This setting is meant to govern the flow of commands to be processed preventing the procedure from timing out. Minimum value is 300. Maximum value is 1000. Default value is 300.

Product Provisioning Sizing

# of DS servers	AWCM Throttle Rate	Command Release Batch Size
1	2	200
2	4	400
3	6	600

4	8	800
5	10	1000

Add General Profile Settings

The following profile settings and options apply to most platforms under Workspace ONE UEM powered by AirWatch and can be used as a general reference. However, some platforms can offer different selections. These steps and settings apply to any profile.

Procedure

1 Navigate to **Resources > Profiles & Baselines > Profiles > ADD**.

You can select from among the following options to add a profile.

- **Add Profile** – Perform a one-off addition of a new device profile.
- **Upload Profile** – Upload a signed profile on your device.
- **Batch Import** – Import new device profiles in bulk by using a comma-separated values (CSV) file. Enter a unique name and description to group and organize multiple profiles at a time.

2 Select **Add Profile**.

3 Select the appropriate platform for the profile you want to deploy.

Depending on the platform, the payload settings vary.

4 Complete the **General** tab by completing the following settings.

Setting	Description
Name	Name of the profile to be displayed in the Workspace ONE UEM console.
Version	Read-only text box that reports the current version of the profile as determined by the **Add Version**.
Description	A brief description of the profile that indicates its purpose.
OEM Settings (Android Only)	Enable to configure profiles specific to Zebra and Samsung devices. When enabled, the profiles are noted with a Knox symbol to indicate available settings specific to Knox. Two new profiles appear: **Date/Time** and **APN** and are specific to Knox. This option only appears when configuring Android profiles.
Select OEM (Android Only)	Select the OEM **Samsung** or **Zebra**. This option only appears when configuring Android profiles.
Deployment	Determines if the profile is automatically removed upon unenrollment (does not apply to Android profiles). ■ **Managed** – The profile is removed. ■ **Manual** – The profile remains installed until removed by the end user.

Setting	Description
Profile Scope (Android or Windows Rugged Only	Determines how the profile is used. Select from the following. ■ **Production** – The profile is to be used as part of product provisioning. ■ **Staging** – The profile is to be used in staging configurations. ■ **Both** – The profile is to be used in both staging and provisioning.
Assignment Type	Determines how the profile is deployed to devices. ■ **Auto** – The profile is deployed to all devices. ■ **Optional** – An end user can optionally install the profile from the Self-Service Portal (SSP), or it can be deployed to individual devices at the administrator's discretion. End users can also install profiles representing Web applications, using a Web Clip or a Bookmark payload. And if you configure the payload to show in the App Catalog, then you can install it from the App Catalog. ■ **Interactive** – **(Does not apply to iOS or Android)**. This profile is of a unique type that end users install with the Self Service Portal. When installed, these special types of profiles interact with external systems to generate data meant to be sent to the device. This option is only available if enabled in **Groups & Settings > All Settings > Devices & Users > Advanced > Profile Options**. ■ **Compliance** – The profile is applied to the device by the Compliance Engine when the user fails to take corrective action toward making their device compliant. For more information, see Compliance Profiles.
Allow Removal	**(iOS 7 and below only)** Determines whether or not the end user can remove the profile. ■ **Always** – The end user can manually remove the profile at any time. ■ **With Authorization** – The end user can remove the profile with the authorization of the administrator. Selecting this option adds an account **Password** text box. ■ **Never** – The end user cannot remove the profile from the device.
Managed By	The organization group with administrative access to the profile.
Assigned Groups	Refers to the group to which you want the device profile added. Includes an option to create a new smart group which can be configured with specs for minimum OS, device models, ownership categories, organization groups and more. While Platform is a criterion within a smart group, the platform configured in the device profile or compliance policy always takes precedence over the smart group's platform. For instance, if a device profile is created for the iOS platform, the profile is only assigned to iOS devices even if the smart group includes Android devices.
Exclusions	If **Yes** is selected, a new text box **Excluded Groups** displays. This text box enables you to select those groups you want to exclude from the assignment of the device profile.
View Device Assignment	After you make an **Assigned Group** selection, you can preview a list of all assigned devices, taking the smart group assignments and exclusions into account.

Setting	Description
Additional Assignment Criteria	These check boxes enable additional restrictions for the profile. ■ **Install only on devices inside selected areas.** – Enter an address anywhere in the world and a radius in kilometers or miles to make a 'perimeter of profile installation'. For more information, see Geofence Areas. ■ **Enable Scheduling and install only during selected time periods** – Specify a configured time schedule in which devices receive the profile only within that time-frame. Selecting this option adds a required text box **Assigned Schedules**. For more information, please see Time Schedules.
Removal Date	The date when the profile is removed from the device. Must be a future date formatted as MM/DD/YYYY.

5 Configure a **Payload** for the device platform. You can search for a payload by name by entering keywords in the **Find Payload** text box above the Payload listing.

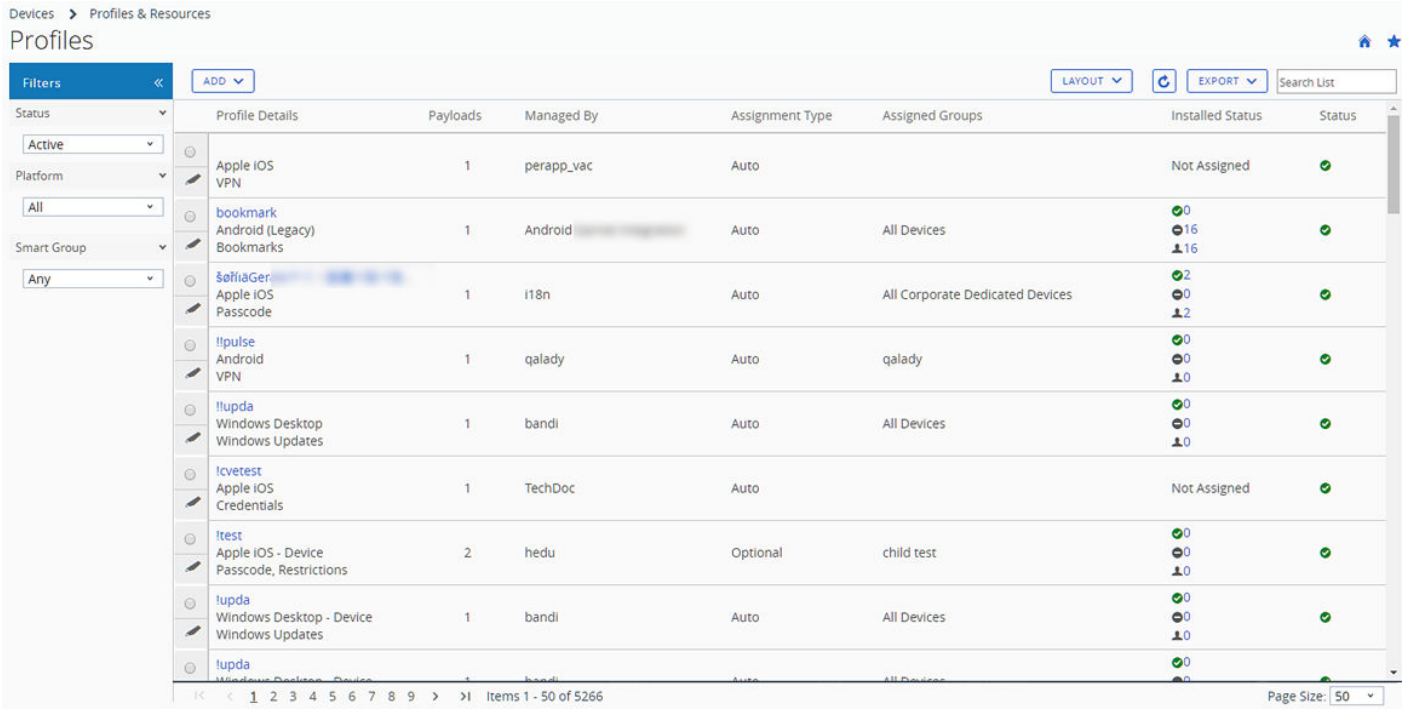
For step-by-step instructions on configuring a specific **Payload** for a particular platform, refer to the applicable **Platform Guide**, available on docs.vmware.com.

6 Select **Save & Publish**.

Device Profiles List View

After you create and assign profiles in Workspace ONE UEM, you need a way to manage these settings one at a time and remotely from a single source. The **Resources > Profiles & Baselines > Profiles** provides a centralized way to organize and target profiles.

You can create tailor-made lists of device profiles based on the criteria you specify by using **Filters**, **Layout**, and **Column Sorting**. You can also export these lists to a CSV file suitable for viewing with Excel and see the status of the device profile.



Device Profile Hover-Over Pop-Up

Each device profile in the **Profile Details** column features a tool tip icon in the upper-right corner. When this icon is tapped (mobile touch device) or hovered-over with a mouse pointer (PC or Mac), it displays a hover-over pop-up.

This pop-up contains profile information such as **Profile Name**, the **Platform**, and the included payload **Type**.

A similar tooltip icon is found in the **Assigned Groups** column in the **Profiles List** view, featuring hover-over pop-ups displaying **Assigned Smart Groups** and **Deployment Type**.

Device Profiles Read-Only View

Device Profiles created in and managed by one organization group (OG) are in a read-only state when accessed by a logged-in administrator with lower-level privileges. The profile window reflects this read-only state by adding a special comment, “this profile is being managed at a higher organization group and cannot be edited.”

This read-only limitation applies to smart group assignments as well. When a profile is created at a parent OG and is assigned to a smart group, a child OG admin can see but not edit it.

Such behavior maintains a hierarchy-based security and fosters communication among admins.

List View Options

Setting	Description
Filters	View only the desired profiles by using the following filters. ■ **Status** – Filter devices to view Active, Inactive, and All devices. ■ **Platform** – Filter devices by 13 types of platforms or all platforms. ■ **Smart Group** – Filter devices by selecting a smart group from the drop-down menu.
Layout	Enables you to customize the column layout of the listing. ■ **Summary** – View the **List View** with the default columns and view settings. ■ **Custom** – Select only the columns in the **List View** you want to see. You can also apply selected columns to all administrators at or below the current organization group.
Export	Save an XLSX or CSV (comma-separated values) file of the entire **List View** that can be viewed and analyzed with MS Excel. If you have a filter applied to the **List View**, the exported listing reflects the filtered results.
Column Sorting	Select the column heading to toggle the sorting of the list.
Profile Details	In both the **Summary** and **Custom** views, the **Profile Details** column displays the name, platform, and payload types.
Payloads	Displays the number of payloads specified in the device profile.

Setting	Description
Installed Status	This column shows the status of a profile installation by displaying three icon indicators, each with a hypertext number link. Selecting this link displays the **View Devices** page, which is a listing of affected devices in the selected category. ■ **Pending Install** () – This indicator displays the number of devices that are scheduled to have the profile installed. ■ **Installed** () – This indicator displays the number of devices on which the profile is assigned and successfully installed. ■ **Not Installed** () – This indicator displays the number of devices to which the profile is assigned but not installed. ■ **Assigned** () – This indicator displays the total number of assigned profiles whether they are installed or not. ■ **Pending Removal** () – This indicator displays the total number of profiles scheduled for removal. ■ **Removed** () – This indicator displays the total number of removed profiles. ■ **Out of Date** () – This indicator appears when an updated version of the installed profile is available. ■ **Pending Information** () This indicator displays when the profile is in a 'held' state. Typical examples of this state include profiles that require information from third party servers (such as VPN profiles involving Websense and zScaler as well as Certificate profiles needing CA data) remain in a held state until contact with these servers is made and the requisite information is obtained. ■ **Not Assigned** – This text only indicator displays when the profile is defined and saved but not yet assigned to devices. ■ **Not Applicable** – This text only indicator displays when the profile is defined, saved, and assigned but there are details in its configuration that make it inapplicable to the devices it is assigned to. ■ **Installation Failed** – This text only indicator displays when the profile is defined, saved, and assigned but there is an error that prevents it from installing successfully.

Radio button and **Edit Icon**	The **List View** features a selection radio button and **Edit** icon, each to the left of the profile.
	Selecting the **Edit** icon () enables you to make basic changes to the profile configuration. Selecting a single radio button causes the **Devices** button, the **XML** button, and **More Actions** button to appear above the listing.
	■ **Devices** – View devices that are available for that profile and whether the profile is installed and if not, see the reason why. Survey which devices are in your fleet and manually push profiles if necessary.
	■ **</ > XML** – Display the XML code that Workspace ONE UEM generates after profile creation. View and save the XML code to reuse or alter outside of the Console.
	■ **More Actions**
	  ■ **Copy** – Make a copy of an existing profile and tweak the configuration of the copy to get started with device profiles.
	  ■ **Activate/Deactivate** – Toggle between making a device profile active and inactive.
	  ■ **Delete** – Maintain your roster of profiles by removing unnecessary profiles.

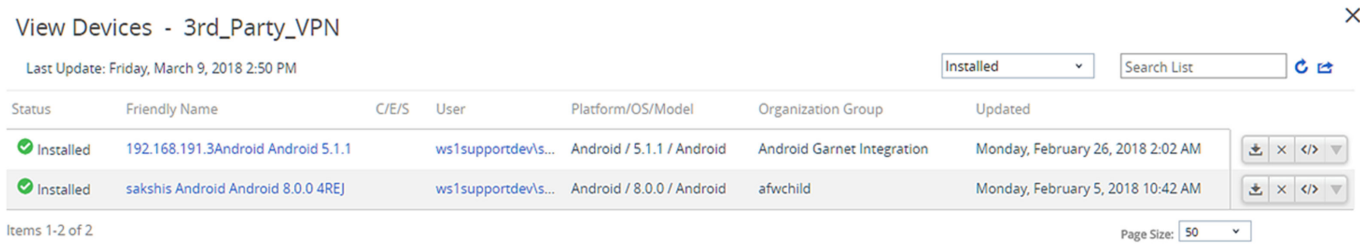
Confirm Device Profile Installation

During those infrequent cases in which profiles do not install on targeted devices, the **View Devices** screen enables you to see the specific reason why.

Profile Install Status

1 Navigate to **Resources > Profiles & Baselines > Profiles** and observe the listing that displays.

2 Review the **Installed Status** column and select the number links that display to the right of the indicator icons to open the **View Devices** screen. For details about the indicator icons, see the **Installed Status** definitions in the **Device Profiles List View**.



Result: The **View Devices - <profile name>** screen displays.

3 (Optional) Produce a comma-separated value (CSV) file of the entire **View Devices** page by selecting the **Export** icon ( ). Excel can be used to read and analyze the CSV file.

4 (Optional) Customize which columns in the **View Devices** page you want to be visible by selecting the **Available Columns** icon ( ).

View iOS Devices Command Status Column

iOS devices feature a **Command Status** column on the **View Devices** screen which includes useful installation statuses as they relate to the selected iOS device. The following statuses appear in the Command Status column.

- **Error** – Displays as a link that, when selected, shows the specific error code applicable to the device.
- **Held** – Displays when the device is included in a certificate batch process that is underway.
- **Not Applicable** – Displays when the profile assignment does not impact the device but is nonetheless part of the smart group or deployment. For example, when the profile type is unmanaged.
- **Not Now** – Displays when the device is locked or otherwise occupied.
- **Pending** – Displays when the installation is queued and is on schedule to be completed.
- **Success** – Displays when the profile is successfully installed.

Technical Preview: Profiles and Profile Resources Used in Workflows

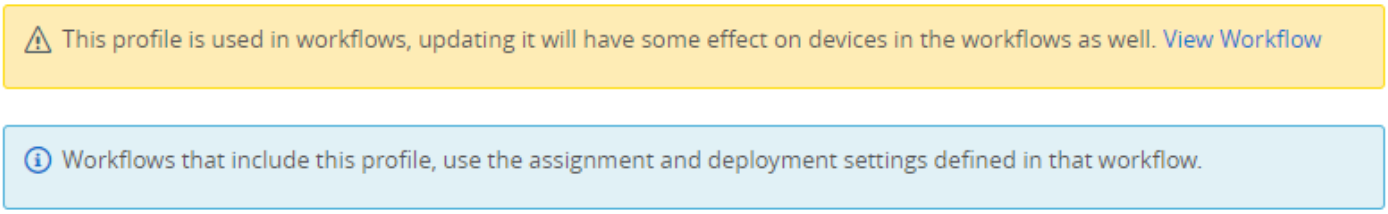
You can see how many Freestyle Workflows include a profile or profile resource by selecting the profile from the list view and selecting the **View Workflow** link. Changes to device profiles and profile resources are reflected in the workflow that uses it.

Note Workspace ONE UEM offers Freestyle Orchestrator Workflows as a tech preview feature for our SaaS customers. For more information, see What is Freestyle Orchestrator.

Technical preview features are not fully tested and some functionality may not work as expected. However, these previews help Workspace ONE UEM improve current functionality and develop future enhancements. The content in this section applies only to customers who are participating in the technical preview. If you are participating in the tech preview feature and you intend to use an application or a specific version of an app in workflows, consider the following properties:

Notification for Profiles

Navigate to **Resources > Profiles & Baselines > Profiles**. When you select a device profile that is used in a Freestyle Workflow, you see the following notification.



When you select the **View Workflow** link, a **Workflow for Profile** screen displays showing all the Freestyle Workflows that feature the selected profile, including the workflow description, assigned groups, and the date the workflow was created.

Processing

Profiles that are part of a smart group assignment can also be used in a Freestyle Workflow. Any devices common to both the smart group and the workflow assignments, the workflow takes priority.

The exception to the workflow taking priority is when the **Assignment Type** is set to 'Auto,' at which point the Direct Assignemnt is prioritized. Navigate to **Resources > Profiles & Baselines > Profiles > Add > Add Profile** and after selecting the platform, the **Assignment Type** option can be found on the **General** payload screen.

Making Changes to Profiles

If you make changes to a profile that is used in a workflow, those changes carry forward to the workflow automatically.

You cannot delete a profile that is used in a workflow. You must first remove the profile from the workflow, which you can do by editing the workflow. For more information, see the Freestyle Orchestrator Guide.

Profile Resources

Similar to how device profile changes affect Workflows, if you make changes to a Windows Profile Resource that is used in a Workflow, the changes carry forward to the Workflow in the same way.

You can identify the name of the Workflow that includes the profile resource in the **Assignment** tab of the **Edit Resource** screen.

For more information about Profile Resources, see Profile Resources.

Device Profile Editing

Using Workspace ONE UEM powered by AirWatch, you can edit a device profile that has already been installed to devices in your fleet. There are two types of changes you can make to any device profile.

- **General** – General profile settings serve to manage the profile distribution: how the profile is assigned, by which organization group it is managed, to/from which smart group it is assigned/excluded.
- **Payload** – Payload profile settings affect the device itself: Passcode requirement, device restrictions such as camera use or screen capture, Wi-Fi configurations, VPN among others.

Since the operation of the device itself is not impacted, **General** changes can usually be made without republishing the profile. Saving such changes results in the profile only being pushed to devices that were not already assigned to the profile.

Payload changes, however, must always be republished to all devices, new and existing, since the operation of the device itself is affected.

Edit General Device Profile Settings

General profile settings include changes that manage its distribution only. This distribution includes how the profile is assigned, by which organization group (OG) it is managed, and to/from which assignment group it is assigned/excluded.

1 Navigate to **Resouces > Profiles & Baselines > Profiles**.

2 Locate the profile you want to edit and select its **Edit** icon ( ).

The only profiles that are editable are those profiles that an organization group (or a child organization group underneath) manages.

3 Make any changes you like in the **General** category.

4 After completing **General** changes, you can select **Save & Publish** to apply the profile to any new devices you might have added or removed.

Devices already assigned with the profile do receive the republished profile again. The **View Device Assignment** screen appears, confirming the list of currently assigned devices.

Edit Payload Device Profile Settings

Payload profile settings include changes that affect the device itself: passcode requirement, device restrictions such as camera use or screen capture, Wi-Fi configurations, VPN among others.

The **Add Version** button enables you to create an increment version of the profile where settings in the **Payload** can be modified.

1 Enable **Payload** editing that impacts the operation of the device by selecting the **Add Version** button.

   Selecting the **Add Version** button and saving your changes means republishing the device profile to all devices to which it is assigned. This republishing includes devices that already have the profile.

   For step-by-step instructions on configuring a specific **Payload**, refer to the applicable **Platform Guide**, available on docs.vmware.com.

2 After completing **Payload** changes, select **Save & Publish** to apply the profile to all assigned devices.

Results: The **View Device Assignment** screen appears, enabling you to confirm the list of currently assigned devices.

Compliance Profiles

To understand Compliance Profiles in Workspace ONE UEM powered by AirWatch, you must have a full understanding of device profiles and compliance policies. Device profiles serve as the foundation for device management and security while compliance policies act as a security gate protecting corporate content.

Device profiles grant you control over a wide range of device settings. These settings include passcode complexity, Geofencing, time schedules, device hardware functionality, Wi-Fi, VPN, Email, Certificates, and many more.

The compliance engine monitors rules, enforces actions, and applies escalations (all of which you define). Compliance profiles, however, seek to provide the compliance engine with all the options and settings ordinarily available only to device profiles. For more information, see Chapter 4 Compliance Policies.

For example, you can make a special device profile that is identical to your normal device profile, only with more restrictive settings. You can then apply this special device profile in the Actions tab when you define your compliance policy. With such an arrangement, if the user fails to make their device compliant, you can apply the more restrictive compliance profile.

Add a Compliance Profile

You can add a compliance profile, which is a hybrid of a compliance policy and a device profile, joining the best of these two features together. Adding a compliance profile is a two part process: 1) make a device profile and 2) assign it as an 'action' in a compliance policy.

Compliance profiles are created and saved in the same manner as Auto and Optional device profiles.

1 Navigate to **Resources > Profiles & Baselines > Profiles**, then select **Add**, then **Add Profile**, then select a platform.

2 Select a **Name** for your compliance profile that you can recognize later.

3 In the **General** profile tab, select 'Compliance' in the **Assignment Type** drop-down setting.

4 Complete the remaining General and Payload settings.

5 When finished, select **Save & Publish**.

6 Select this profile in your compliance policy.

7 Navigate to **Devices > Compliance Policies > List View** and select **Add**, then select a platform.

8 Define the **Rules** and select **Next**.

9 In the **Actions** tab, make the following selections.

   a Set the first drop-down menu to 'Profile'.

   b Set the second drop-down menu to 'Install Compliance Profile'.

   c Set the third drop-down menu to the device profile you named.

10 Select **Next** and proceed configuring the remaining settings including Assignment and Summary tabs.

11 Save the compliance policy by selecting **Finish** or **Finish and Activate**.

For step-by-step instructions on completing a device profile, see Device Profile Editing.

For step-by-step instructions on completing a compliance policy, see Add a Compliance Policy.

Profile Resources

Profile Resources simplify the provisioning of Wi-Fi, VPN, and Exchange payloads for Workspace ONE UEM deployments that support multiple device platforms, such as iOS, Android, and Windows.

Create a profile resource for any of these payloads and define the general settings each device platform receives. You can then optionally configure platform-specific settings that apply only to those devices.

Profile Resources are defined, managed, and deployed separately from device profiles. Deploy profile resources alongside device profiles to provide deep and broad device management for all supported platforms in your deployment.

You do not have to use profile resources to deploy Wi-Fi, VPN, or Exchange settings. If you choose, you can still create separate device profiles for these payloads for each platform. Consider deploying profile resources when you expect the Wi-Fi, VPN, or Exchange settings to be identical or similar across platforms. Then, create additional device profiles as usual to manage functionality further for each platform.

Profile Resources List View

Use the Profile Resources List View in Workspace ONE UEM to add and manage your collection of profile resources which includes viewing, deleting, and editing individual resource configurations.

Add a Profile Resource

You can add a profile resource to provision your multi-platform device fleet with the same Exchange, wi-fi, and VPN settings.

Navigate to **Devices > Profile Resources** and select **Add Resource**. You must select from the following options to add a resource.

- **Exchange** – Configure email settings so you can keep in touch with your Exchange email server.
- **Wi-Fi** – Configure Wi-Fi connectivity settings so you can maintain network connectivity.
- **VPN** – Configure virtual private network settings so you can maintain a secure connection.

Each profile resource requires three distinct configuration steps. Create a profile resource by specifying the **Resource Details**, the applicable **Platforms**, and the **Assignment** of the resource to devices.

- The **Resource Details** contain the resource name, description, server dependencies, and other critical settings that determine how the profile resource operates.
- The **Platforms** define on which devices the profile resource runs.
- The **Assignment** determines how the profile resource is deployed, including organization groups, user groups, and smart groups.

Manage Resources

Once you have amassed a collection of profile resources, you can manage them by navigating to **Devices > Profile Resources** and Filter, View, Edit, and Delete resources.

- **Filter** the Profile Resource List View to show Active, Inactive, or All resources.
- **View** the different platforms which your profile resource includes by selecting the hyperlink numeral in the **Platforms** column.
    - Open **Advanced Settings** for the profile resource by selecting the hyperlink platform name.

- Open the **View Devices** page by selecting the hyperlink numerals in the **Installed/ Assigned** column of the Platforms page. This page displays the list of devices assigned to the profile resource.
- View and Export the XML code and upload a certificate by clicking the **View** hyperlink in the XML column of the Platforms page.

- **Edit** a profile resource by selecting the name link of the resource which displays the **Resource Details** section of the **Edit Resource** page.
  - Edit the profile resource details by clicking the edit pencil ( ) to the left of the resource listing. You may proceed making edits to the other sections of the **Edit Resource** page by selecting the **Next** button.
  - Edit the assignment of the profile resource by selecting the radio button to the left of the Profile Resource listing and then clicking the **Edit Assignment** button.
- **Delete** a profile resource by selecting the radio button to the left of the resource listing and clicking the **Delete** button. Deleting a resource sets the resource to inactive until it is removed from all devices.

Add an Exchange Resource

You can add a resource dedicated to providing devices with the means to send and receive secure email communications while managed under Workspace ONE UEM powered by AirWatch.

For an overview, see Profile Resources.

Procedure

1 Navigate to **Devices > Profiles & Resources > Resources** and select **Add Resource** followed by **Exchange** and complete the following settings.

Setting	Description
Resource Details	
Resource Name	Name of the profile to be displayed in the Workspace ONE UEM console.
Description	A brief description of the profile that indicates its purpose.
Connection Info	
Mail Client	Select the email client you want to use with the resource.
Exchange Host	Enter the Exchange Host for the email account to be included in the resource.
Use SSL	Enable a secure socket layer for this mail client.
Advanced	
Domain*	Enter a lookup value for the email domain.
User name*	Enter a lookup value for the email user name.

Setting	Description
Email Address*	Enter a lookup value for the email address.
Password	Enter the password for the email account. Enable the **Show Characters** check box to display the unredacted password.
Identity Certificate	Upload and attach a certificate authority to the email account by selecting the **Add A Certificate** button.
Past Days of Mail to Sync	Select the length of email history you want to synchronize. Choose from **3 Days**, **1 Week**, **2 Weeks**, **1 Month**, and **Unlimited**.
Sync Calendar	Choose to synchronize your device calendar with the exchange calendar. This setting is enabled by default on iOS and macOS devices.
Sync Contacts	Choose to synchronize your device contacts with the exchange contacts. This setting is enabled by default on iOS and macOS devices.

* For details, see Chapter 12 Lookup Values.

2 Click **Next** to proceed to the **Platforms** selection. Choose among the following supported platforms, opting for either the default settings or **Advanced Settings**.

- **iOS.**
Setting	Description
Use S/MIME.	Use Secure Multipurpose Internet Mail Extensions, a public key encryption and signing standard.
S/MIME Certificate	Only available when **Use S/MIME** is enabled. Add a signing certificate to emails by selecting **Add A Certificate**.
S/MIME Encryption Certificate	Only available when **Use S/MIME** is enabled. Add a certificate that encrypts and digitally signs email by selecting **Add A Certificate**.
Enable Per-Message Switch.	Only available when **Use S/MIME** is enabled. Allow end users to choose which individual email messages to sign and encrypt using the native iOS mail client (iOS 8+ supervised only).
Settings and Security	
Prevent moving messages.	Prevent moving mail from an Exchange mailbox to another mailbox on the device.
Prevent use in third-party apps.	Prevent other apps from using the Exchange mailbox to send messages.
Prevent Recent Address syncing.	Prevent suggestions for contacts when sending mail in Exchange.
Prevent Mail Drop.	Prevent Apple's Mail Drop feature from being used.

- macOS.
Setting	Description
Internal Exchange Host	The name of the secure server for EAS use. This option and following appear when **Native Mail Client** is selected.
Port	Enter the number of the port assigned for communication with the Internal Exchange Host.
Internal Server Path	The location of the secure server for EAS use.
Use SSL For Internal Exchange Host.	Communicate with the Internal Exchange Host by enabling the Secure Socket Layer (SSL).
External Exchange Host.	The name of the external server for EAS use.
Port	Enter the number of the port assigned for communication with the External Exchange Host.
External Server Path	The location of the external server for EAS use.
Use SSL For External Exchange Host.	Communicate with the External Exchange Host by enabling the Secure Socket Layer (SSL).

- Android.
Setting	Description
Settings	
Past Days of Calendar to Sync	Synchronize a selected number of past days on the device calendar.
Allow Sync Tasks	Allow tasks to sync with device.
Maximum Email Truncation Size (KB)	Specify the size (in kilobytes) beyond which email messages are truncated when they are synced to the devices.
Email Signature	Enter the email signature to be displayed on outgoing emails.
Ignore SSL Errors	Allow devices to ignore SSL errors for Agent processes.
Restrictions	
Allow Attachments	Allow attachments with email.
Maximum Attachment Size	Specify the maximum attachment size in MB.
Allow Email Forwarding	Allow the forwarding of email.

Setting	Description
Allow HTML Format	Specify whether email synchronized to the device can be in HTML format. If this setting is disabled, all email is converted to text.
Disable screenshots	Disallow screenshot to be taken on the device.
Sync Interval	Enter the number of minutes between syncs.
Peak Days for Sync Schedule	

	■ Schedule the peak weekdays for syncing and the **Start Time** and **End Time** on selected days.
	■ Set the frequency of **Sync Schedule Peak** and **Sync Schedule Off Peak**.
	  ■ Selecting **Automatic** syncs email whenever updates occur.
	  ■ Selecting **Manual** only syncs email when selected.
	  ■ Selecting a time value syncs the email on a set schedule.
	■ Enable **Use SSL**, **Use TLS**, and **Default Account**.

S/MIME Settings	
	Select **Use S/MIME**. From here, you can select an S/MIME certificate you associate as a **User Certificate** on the **Credentials** payload. ■ **S/MIME Certificate** – Select the certificate to be used. ■ **Require Encrypted S/MIME Messages** – Require encryption of S/MIME messages. ■ **Require Signed S/MIME Messages** – Require all S/MIME messages be digitally signed. Provide a **Migration Host** if you are using S/MIME certificates for encryption.

- **Windows Desktop.**
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Settings	Descriptions
Settings	
Next Sync Interval (Min)	Select the frequency, in minutes, that the device syncs with the EAS server.
Diagnostic Logging	Log information for troubleshooting purposes.
Content Type	
Allow Email Sync	Allow the syncing of email messages.

3 Click **Next** to proceed to the **Assignment** section.

4 Assign the resource to devices by completing the following settings.

Setting	Description
Assignment Type	Determines how the resource is deployed to devices. ■ **Auto** – The resource is deployed to all devices automatically. ■ **Optional** – An end user can optionally install the resource from the Self-Service Portal (SSP), or it can be deployed to individual devices at the discretion of the administrator.
Managed By	The organization group with administrative access to the resource.
Assigned Groups	Refers to the group to which you want the device resource added. Includes an option to create a new smart group which can be configured with specs for minimum OS, device models, ownership categories, organization groups and more.
Exclusions	If **Yes** is selected, a new text box **Excluded Groups** displays which enables you to select those groups you want to exclude from the assignment of this resource.
View Device Assignment	After you have made a selection in the **Assigned Group** text box, you may select this button to preview a list of all devices to which this resource is assigned, taking the smart group assignments and exclusions into account.

Add a Wi-Fi Resource

You can add a resource dedicated to providing devices with the means to connect to a wireless network, allowing them to send and receive data securely while managed under Workspace ONE UEM powered by AirWatch.

For an overview, see Profile Resources.

Procedure

1 Navigate to **Devices > Profiles & Resources > Resources** and select **Add Resource** followed by **Wi-Fi** and complete the following settings.

Setting	Description
Resource Details	
Resource Name	Name of the profile to be displayed in the Workspace ONE UEM console.
Description	A brief description of the profile that indicates its purpose.
Connection Info	
Service Set Identifier	Enter an identifier that is associated with the name (SSID) of the desired Wi-Fi network.
Hidden Network	Enable if the network is not open to broadcast.
Auto-Join	Setting that directs the device to join the network automatically.

Setting	Description
Encryption	Use the drop-down menu to specify if data transmitted using the Wi-Fi connection is encrypted. Displays based on the **Security Type**.
Password	Enter the password for the email account. Enable the **Show Characters** check box to display the unredacted password.

2 Click **Next** to proceed to the **Platforms** selection. Choose among the following supported platforms, opting for either the default settings or **Advanced Settings**.

- **Configure Advanced Settings for Wi-Fi Proxy.**

Setting	Description
Proxy Type	Choose between **None**, **Manual**, and **Auto**.
Proxy URL	Available only when **Proxy Type** is **Auto**. Enter the URL of the Wi-Fi proxy that the device uses to connect.
Allow a direct connection if PAC is unreachable	Available only when **Proxy Type** is **Auto**. Enable if you want to allow the device to connect during times when the proxy auto config file is not accessible.
Proxy Server	Available only when **Proxy Type** is **Manual**. Enter the name of the proxy server to which your devices connect.
Proxy Server Port	Available only when **Proxy Type** is **Manual**. Include the port number of the proxy server through which the device connects to the proxy server.
Proxy user name	Available only when **Proxy Type** is **Manual**. Enter a user name recognized by the proxy server.
Proxy Password	Available only when **Proxy Type** is **Manual**. Enter the password that corresponds to the user name entered.

- **Configure Advanced Settings for Android Wi-Fi.**

Setting	Description
Fusion	
Include Fusion Settings	Display the main settings for the Fusion feature.
Set Fusion 802.11d / Enable 802.11d	Use an 802.11d wireless specification for operation in additional regulatory domains.
Set Country Code / Country Code	Set the Country Code for use in the 802.11d specifications.
Set RF Band	Display all the Radio Frequency specification options including 2.4 GHz and 5-GHz channel masking.
Set 2.4 GHz / Enable 2.4 GHz	Use the 2.4-GHz wireless frequency.

Setting	Description
2.4 GHz Channel Mask	Reduce adjacent channel interference by applying a channel or spectral mask around the 2.4-GHz frequency.
Set 5 GHz / Enable 5 GHz	Use the 5-GHz wireless frequency.
5 GHz Channel Mask	Reduce adjacent channel interference by applying a channel or spectral mask around the 5-GHz frequency.
Proxy	
Enable Manual Proxy	Display the proxy server settings.
Proxy Server	Enter the proxy domain name.
Proxy Server Port	Enter the port number to be used by the proxy server.
Exclusion List	Enter hostnames that are not routed through the proxy. Use an asterisk as a wildcard for the domain. For example, *.air-watch.com.

3 Click **Next** to proceed to the **Assignment** section.

4 Assign the resource to devices by completing the following settings.

Setting	Description
Assignment Type	Determines how the resource is deployed to devices. ■ **Auto** – The resource is deployed to all devices automatically. ■ **Optional** – An end user can optionally install the resource from the Self-Service Portal (SSP), or it can be deployed to individual devices at the discretion of the administrator.
Managed By	The organization group with administrative access to the resource.
Assigned Groups	Refers to the group to which you want the device resource added. Includes an option to create a new smart group which can be configured with specs for minimum OS, device models, ownership categories, organization groups and more.
Exclusions	If **Yes** is selected, a new text box **Excluded Groups** displays which enables you to select those groups you want to exclude from the assignment of this resource.
View Device Assignment	After you have made a selection in the **Assigned Group** text box, you may select this button to preview a list of all devices to which this resource is assigned, taking the smart group assignments and exclusions into account.

Add a VPN Resource

Workspace ONE UEM powered by AirWatch allows you to add a resource dedicated to providing a virtual private network (VPN). A VPN enables users to send and receive data across public networks as though they were connected directly to a private network.

For an overview, see Profile Resources.

Procedure

1 Navigate to **Devices > Profiles & Resources > Resources** and select **Add Resource** followed by **VPN** and complete the following settings.

Setting	Description
Resource Details	
Resource Name	Name of the profile to be displayed in the Workspace ONE UEM console.
Description	A brief description of the profile that indicates its purpose.
Connection Info	
Connection Type	Select the type of secure connection from the drop-down listing.
Server	Enter the server URL.

2 Click **Next** to proceed to the **Platforms** selection. Choose among the following supported platforms, opting for either the default settings or **Advanced Settings**.

- iOS
Settings	Description
Connection Info	
Account	Enter the name of the VPN account.
Disconnect on Idle (min).	Allow the VPN to auto-disconnect after a specific amount of time. Support for this value depends on the VPN provider.
Send All Traffic.	Select to force all traffic through the specified network.
Per App VPN Rules	Select to enable and configure Per App VPN rules.
Connect Automatically.	Select to allow the VPN to connect automatically to Safari Domains. This option appears when the **Per App VPN Rules** check box is selected.
Provider Type	Select the type of Per-App VPN provider. Determine how to tunnel traffic, either through an application layer or IP layer by selecting between AppProxy and PacketTunnel. This option appears when the **Per App VPN Rules** check box is selected.
Safari Domains	Enter each domain to which you want the Per-App VPN to connect automatically. These domains are internal sites that trigger an automatic VPN connection. This option appears when the **Per App VPN Rules** check box is selected.
Authentication	
User Authentication	Authenticate end users by either uploading a **Certificate** or by requiring a **Password** for VPN access.
Group Name	Enter the Workspace ONE UEM group name.
Password	Available only when **User Authentication** is set to Password. Enter the password for the Workspace ONE UEM Group Name.

Settings	Description
Identity Certificate	This setting is only available when **User Authentication** is set to Certificate. Select **Add A Certificate** to either name and upload a certificate file or select an existing certificate authority using a certificate template.
Enable VPN On Demand.	This setting is only available when **User Authentication** is set to Certificate. Enable VPN On Demand to use certificates to establish VPN connections automatically.
Use new On-Demand keys.	This setting is only available when **User Authentication** is set to Certificate. Enable the option to activate a VPN connection when end users access any of the specified domains.
Match Domain or Host.	This setting is only available when **User Authentication** is set to Certificate. Enter a domain or hostname that, when accessed by an end user, triggers the activation of a VPN connection.
On-Demand Action	This setting is only available when **User Authentication** is set to Certificate. Select the domain-specific on-demand action that takes place when end users activate a VPN connection. Select among Always Establish, Never Establish, and Establish if Needed.
Proxy	
Proxy	Select among **None**, **Manual**, and **Auto**.
Proxy Server Auto Config URL	Available only when **Proxy** is **Auto**. Enter the URL of the Wi-Fi proxy that the device uses to connect.
Server	Available only when **Proxy** is **Manual**. Enter the name of the proxy server to which your devices connect.
Port	Available only when **Proxy** is **Manual**. Include the port number of the proxy server through which the device connects to the proxy server.
User name	Available only when **Proxy** is **Manual**. Enter a user name recognized by the proxy server.
Password	Available only when **Proxy** is **Manual**. Enter the password that corresponds to the user name entered.
Vendor Configurations	
Vendor Keys	Create custom keys using the vendor config dictionary.
Key	Enter the specific key provided by the vendor.
Value	Enter the VPN value for each key.

- Android
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Setting	Description
Authentication	
Identify Certificate.	Enter the certificate credentials used to authenticate the connection by selecting **Add a Certificate**.
Credential Source	Select the source of the credentials. Select between Upload, Defined Certificate Authority, and User Certificate.

Setting	Description
Credential Name	Available when **Credential Source** is set to Upload. Enter the name of the uploaded credential.
Certificate	Available when **Credential Source** is set to Upload. Click Upload to select a certificate file from your device.
Certificate Authority	Available when **Credential Source** is set to Defined Certificate Authority. Select the certificate authority from a drop-down listing.
Certificate Template	Available when **Credential Source** is set to Defined Certificate Authority. This setting auto-populates based on your selection in the Certificate Authority setting.
S/MIME	Available when **Credential Source** is set to User Certificate. Select between the user-centric S/MIME Signing certificate or S/MIME Encryption certificate.
Enable VPN On Demand	
Enable VPN On Demand.	Enable VPN On Demand to use certificates to establish VPN connections automatically. Enable VPN by entering the name of the app and selecting the plus sign to the left of the magnifying glass icon. You can enter more than one application.

3 Click **Next** to proceed to the **Assignment** section.

4 Assign the resource to devices by completing the following settings.

Setting	Description
Assignment Type	Determines how the resource is deployed to devices. ■ **Auto** – The resource is deployed to all devices automatically. ■ **Optional** – An end user can optionally install the resource from the Self-Service Portal (SSP), or it can be deployed to individual devices at the discretion of the administrator.
Managed By	The organization group with administrative access to the resource.
Assigned Groups	Refers to the group to which you want the device resource added. Includes an option to create a new smart group which can be configured with specs for minimum OS, device models, ownership categories, organization groups and more.
Exclusions	If **Yes** is selected, a new text box **Excluded Groups** displays which enables you to select those groups you want to exclude from the assignment of this resource.
View Device Assignment	After you have made a selection in the **Assigned Group** text box, you may select this button to preview a list of all devices to which this resource is assigned, taking the smart group assignments and exclusions into account.

Geofence Areas

Workspace ONE UEM enables you to define your profile with a Geofencing Area, which limits the use of the device to specific areas. You can think of a geofence area as a virtual perimeter for a real-world geographic area.

For example, a geofence area with a 1-mile radius can apply to your office, while a much larger geofence area can apply approximately to an entire state. Once you have defined a geofence area you can apply it to profiles, SDK applications, and Workspace ONE UEM apps.

- Enabling a Geofence Area is a two-step process.
  a Add a Geofencing Area.
  b Apply a Geofence to a Profile.
- Geofencing is available for Android and iOS devices.
- Remember that while Geofencing is combined with another payload to enable security profiles based on location, consider having only one payload per profile.

For more information about how Workspace ONE UEM tracks GPS location, see the following VMware Knowledge Base article: https://support.workspaceone.com/articles/115001663108.

Add Geofencing Area

You must define a Geofencing area before you can apply one to a device.

1 Access the Area settings page by navigating to **Resources > Profiles & Baselines > Settings > Areas**.

Result: System Settings displays.

2 Select the **Geofencing Area** button.

3 Enter an **Address** and the **Radius** of the geofence in kilometers or miles.

You can double-click any area on the map to set the central location.

4 Select **Click to Search** to send the entered address as a search parameter to Bing maps. If the search is successful, the map view updates to display the entered location with the address as the epicenter of the geofence.

Note Integration with Bing maps requires that "insecure content" is loaded on this page. If a location search does not load as expected, you might need to allow "Show all Content" for your browser.

5 Enter the **Area Name** (how it appears in the Workspace ONE UEM console) and select **Save**.

What to do next: Next, you must apply a geofence to a profile.

Apply a Geofence to a Profile

Once you have added a Geofencing area, you can apply it to a profile and combine it with other payloads to create more robust profiles.

If a user manually disables location services on their iOS device, Workspace ONE UEM can no longer collect location updates. Workspace ONE UEM considers the device to be in the location where services were disabled.

1 Navigate to **Resources > Profiles & Baselines > Profiles** and locate the profile you want to apply a geofence to.

2 Select the Edit pencil icon ( ) of the profile.

3 Select **Install only on devices inside selected areas** on the **General** tab. If this checkbox is disabled, select the **Add Version** button. Making a new version means republishing the profile.

   An **Assigned Geofence Areas** box displays. If no Geofence Area has been defined, the menu directs you back to the Geofence Area creation menu.

4 Enter one or multiple Geofencing areas to this profile.

5 Configure a payload such as Passcode, Restrictions, or Wi-Fi that you want to apply only while devices are inside the selected Geofencing areas.

6 Select **Save & Publish**.

For example, you can define geofence areas around each of your offices. Then add a Restrictions payload that disallows access to the Game Center, multiplayer gaming, YouTube content, and other settings. Once activated, employees of the organization group to whom the profile is applied no longer have access to these functions while in the office.

Geofencing Support on iOS Devices

Geofencing for apps only works on iOS devices that have **Location Services** running. In order for location services to function, the device must be connected to either a cellular network or a Wi-Fi hotspot. Otherwise, the device must have integrated GPS capabilities.

For Wi-Fi only devices, GPS data is reported when the device is on, unlocked, and the Workspace ONE Intelligent Hub is open and being used. For cellular devices, GPS data is reported when the device changes cell towers.

Devices in an "airplane mode" result in location services (and therefore Geofencing) being deactivated.

Device	Wi-Fi	Cellular Network	Built-In GPS
iPhone	✓	✓	✓
iPad Wi-Fi + 3G/4G	✓	✓	✓
iPad Wi-Fi	✓		
iPod Touch	✓		

The following requirements must all be met for the GPS location to be updated.

- The device must have the Workspace ONE Intelligent Hub running.

- Privacy settings must allow GPS location data to be collected (**Groups & Settings > All Settings > Devices & Users > General > Privacy**).
- The settings for Workspace ONE Intelligent Hub for Apple iOS must enable “Collect Location Data” (**Groups & Settings > All Settings > Devices & Users > Apple > Apple iOS > Hub Settings**).

  Set the Workspace ONE Intelligent Hub SDK settings to the Default SDK settings instead of "None".

iBeacons

iBeacon is a bluetooth-based proximity sensing protocol developed by Apple. As such, it is exclusive to certain Apple products.

iBeacon is specific to iOS and is used to manage location awareness. For more information, see Apple iBeacon Overview.

Time Schedules

While a profile under Workspace ONE UEM powered by AirWatch dictates how restrictive or permissive the device usability is, a time schedule puts the profile enforcement on a schedule. You can apply a time schedule to a new profile or an existing profile. You can also delete an unused time schedule.

Enabling a Time Schedule is a two-step process.

1 Define a Time Schedule.

2 Apply a Time Schedule to a new or existing Profile.

Define a Time Schedule

1 Navigate to **Resources > Profiles & Baselines > Settings > TimeSchedule**.

2 Select the **Add Schedule** button. The **Add Schedule** screen displays.

3 Select the **+Add Schedule** button, located under the **Day of the Week** column, then complete the following settings.

Setting	Description
Schedule Name.	Enter the name of the time schedule that appears in the listing.
Time Zone	Select the time zone of the organization group under which the device is managed.
Day of the Week	Apply a scheduled profile installation by selecting a day of the week.
All Day	Make the profile install at midnight on the selected **Day of the Week**. Selecting this check box removes the **Start Time** and **End Time** columns.
Start Time.	Select the time of day you want the profile to be installed.
End Time.	Select the time of day you want the profile to be uninstalled.
Actions	Remove the day's schedule by clicking the **X**.

4 Select **Save**.

Apply a Time Schedule to a Profile

1 Navigate to **Resources > Profiles & Baselines > Profiles > ADD** and select your platform.

2 Select **Enable Scheduling and install only during selected time periods** on the **General** tab.

3 In the **Assigned Schedules** box, enter one or more Time Schedules to this profile.

4 Configure a payload, such as Passcode, Restrictions, or Wi-Fi that you want to apply only while devices are inside the time frames.

5 Select **Save & Publish**.

Apply a Time Schedule to an Existing Profile

1 Navigate to **Resouces > Profiles & Baselines > Profiles** and locate the profile from the listing to edit. Edit the profile by selecting the pencil icon ( ) or click the profile name.

2 In the **General** tab of the profile page, enable the setting **Enable Scheduling and install only during selected time periods**.

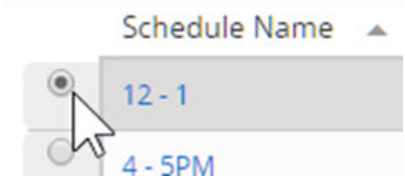
3 In the **Assigned Schedule** setting that appears, select from the drop-down menu the previously saved time schedule.

4 Select **Save & Publish**.

Delete a Time Schedule

1 Navigate to **Resources > Profiles & Baselines > Settings > TimeSchedule**.

2 Select the radio button next to the time schedule you want to delete.



3 Select the **Delete** button.

View Device Assignment, Device Profile

Selecting the **Save & Publish** button upon configuring a device profile displays the **View Device Assignment** screen. This screen previews devices managed by Workspace ONE UEM powered by AirWatch that are affected (or unaffected) by the device profile assignment.

Depending upon which kind of change you make to the device profile, the **Assignment Status** column reflects various states.

- **Added** – The profile is added and published to the device.
- **Removed** – The profile is removed from the device.

- **Unchanged** – Indicates that the profile is not scheduled to be republished to the device.
- **Updated** – Indicates that the profile is republished to a device that already has the profile assigned.

Select **Publish** to finalize the changes and, if necessary, republish any required profile.

Device Tags

11

Device tags in Workspace ONE UEM powered by AirWatch allow you to identify a specific device without requiring a device profile, smart group, or compliance policy without creating a note.

You can filter the device list view by tags, assign tags to a single or multiple devices, unassign tags, and delete unassigned tags.

For example, if a device has an aging battery or a broken screen, you can use tags to identify these devices in the console. Another use is to identify hardware variants in a more visible way rather than relying on the model number or description to tell devices apart.

For instance, two Windows Desktop devices can have the same model number, but their CPUs might be slightly different, or the amount of memory, or video card might be customized. Tagging enhanced hardware enables easy identification of these devices within the console.

Tags and Smart Groups

The tag feature is integrated with smart groups. This integration means tags can be used to define a smart group.

For instance, if you have tagged all the devices in your fleet with cosmetic damage, then you can make a smart group out of these devices. You can then exclude this smart group from the pool of devices you temporarily assign to site visitors.

Another example is tagging low-performing devices. You can make a smart group of these tagged devices and exclude them from being used in mission-critical assignments.

Device Tags and Role Permissions

All activities related to the device tag feature require permissions on the role you assign to your administrators. If you want your admins to own the responsibility of creating tags, you must add that permission (known as Resources in the console) to the role you assign to that administrator. The same is true of viewing tags, editing tags, deleting tags, assigning tags, even the ability to search for tags.

Filter Devices by Tag

1 Navigate to **Devices > List View**, select **Filters** to display the **Filters** column s to the left of the device list.

2 Select **Advanced** from the list of Filter Categories and select **Tags**.

3 Click anywhere in the Search text box and select from the list of device tags that display.

Results: Devices with deselected tags are filtered out of the resulting list. The **Device List View** immediately refreshes itself when the first tag is selected.

Create a New Tag from System Settings

Before you begin: You must have the correct permissions to create a tag. You can check on these permissions by viewing all the assigned resources (or permissions) of an admin role, modify the role with the 'Create Tag' permission and if not already assigned, then assign the modified role to your admin account. For details, see the topic **View the Resources of an Admin Role**.

1 Navigate to **Groups & Settings > All Settings > Devices & Users > Advanced > Tags**.

2 Select the **Create Tag** button. The **Create Tag** screen displays.

3 Enter the **Name** of the tag. The selection of the tag name is what makes the tag useful or not. Select a name that can be used to identify a device at a glance.

4 Select the **Type** of tag you want: **Device**, **General**, or **Video**.

5 Select **Save**.

The device tag is now available to be assigned to a device. Navigate to **Devices > List View** and select one or more devices to assign this tag to.

Assign Tags to a Single Device

You can assign tags to a device to identify it without using notes, profiles, policies, or giving the device a special friendly name. Are you looking for granting permissions as part of an admin role that includes (or excludes) the ability to assign a tag to a device? See the topic **View the Resources of an Admin Role**.

1 Navigate to **Devices > List View** and select the device you want to tag. Select the device you want to tag by choosing between these two selection methods.

   a Display the **Details View** by selecting the device friendly name from the listing.

   b Select the check box above the pencil icon, next to the device.

2 Select the **More Actions** button and then select **Assign Tag**. The **Tag Assignment** screen displays with a listing of tags available to apply to your selected device.

3 Select each of the tags you want to assign to the device. You can select more than one tag. If you selected **Assign Tag** from the device **Details View**, you also have a **Manage Tags** link which, when selected, opens the Tags System Settings page, enabling you to create a new tag.

Assign Tags to Multiple Devices

You must have the correct permissions to assign a tag to multiple devices. You can check on these permissions by viewing all the assigned resources (or permissions) of an admin role, modify the role with the 'Device Bulk Management assign Tags' permission and if not already assigned, then assign the modified role to your admin account.

You can configure the maximum number of devices you are allowed to assign or unassign tags by navigating to **Groups & Settings > All Settings > Devices & Users > Advanced > Bulk Management** and scroll down to the **Assign/Unassign Tag** option.

1 Navigate to **Devices > List View**.

2 Select the check box of each device you want to assign a tag to.

3 Select **More Actions** and then select **Manage Tags**.

The **Manage Tags** page displays with multiple pieces of information. It confirms the number of devices selected from list view, it displays the currently assigned tags, and all the tags available to assign. You can also use the search text boxes in the upper-right corner of the Manage Tags page to enter search parameters for tag labels.

4 Select the tags you want to assign to all the selected devices. You can select more than one tag. You can also assign some tags while unassigning others in the same step.

5 Select **Save**.

Edit an Existing Device Tag

You must have the correct permissions to edit a tag. You can check on these permissions by viewing all the assigned resources (or permissions) of an admin role, modify the role with the 'Edit Tag' permission and if not already assigned, then assign the modified role to your admin account.

1 Navigate to **Groups & Settings > Devices & Users > Advanced > Tags**.

2 Identify the tag you want to edit from the listing.

3 Select the pencil icon ( ) next to the tag you want to edit. The Edit Tag screen displays.

4 Edit the **Name** of the tag.

5 Select **Save**.

Results: The tag has been edited with a new name. Devices that were assigned with the previous tag have been updated with the edited tag.

Unassign Tags from Multiple Devices

You must have the correct permissions to unassign tags from multiple devices. You can check on these permissions by viewing all the assigned resources (or permissions) of an admin role, modify the role with the 'Bulk Management unassign tags' permission and if not already assigned, then assign the modified role to your admin account. For details, see the topic **View the Resources of an Admin Role**.

You can configure the maximum number of devices you are allowed to assign or unassign tags by navigating to **Groups & Settings > All Settings > Devices & Users > Advanced > Bulk Management** and scroll down to the **Assign/Unassign Tag** option.

To unassign tags from multiple devices, take the following steps.

1 Navigate to **Devices > List View** and search for the tag you want to unassign. Alternately, you can filter devices based on one or more tags.

2 Select the check box to the left of each device in the Devices List View that has the tag you want to unassign.

3 Select the **More Actions** button above the listing.

4 Select **Manage Tags**.

The **Manage Tags** page displays with multiple pieces of information. It confirms the number of devices selected from list view, it displays the currently assigned tags, and all the tags available to assign. You can also use the search text boxes in the upper-right corner of the Manage Tags page to enter search parameters for tag labels.

5 Select the small 'x' next to each assigned tag you want to remove. You can unassign more than one tag. You can also assign some tags while unassigning others in the same step.

6 Select **Save**.

Results: The tag has been unassigned from all the devices you have selected. If that tag is assigned to any other device, the tag cannot be deleted.

Delete an Unassigned (Unused) Device Tag

So long as a tag is unassigned and you have no plans to use it again, you can delete it.

You must have the correct permissions to delete a tag. You can check on these permissions by viewing all the assigned resources (or permissions) of an admin role, modify the role with the 'Delete Tag' permission and if not already assigned, then assign the modified role to your admin account. For details, see the topic **View the Resources of an Admin Role**.

Tags you want to delete must not be assigned to any device.

To unassign tags from devices, see the previous section above.

1 Once the tag is completely unassigned, navigate to **Groups & Settings > Devices & Users > Advanced > Tags**.

2 Identify the tag you want to delete from the listing.

3 Select the radio button next to the tag you want to delete. The **Delete** button displays above the listing.

4 Select **Delete**. A confirmation appears asking "Permanently delete tag?"

5 Select **OK** on the confirmation. If the tag is assigned to a device, you are not allowed to delete it. See the instructions above to unassign tags from devices.

If the tag is not assigned to any device when you delete it, it is now removed.

Lookup Values

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A lookup value is a variable that represents a particular data element of a device, user, or admin account in Workspace ONE UEM and Workspace ONE Express. Lookup values can be invaluable in completing a process or a form.

In several different text boxes in the Workspace ONE UEM console and Workspace ONE Express, you can add lookup values in place of manually entered or static values. In most cases, lookup values function as a stand-in for a piece of information you do not know or do not have access to.

For example, the **Add Device** screen is used to add a device to your fleet. One of the text boxes on this screen that can be completed with lookup values is the **Expected Friendly Name**.

The friendly name represents the device on many different screens in the UEM console including the **Device List View** and the **Details View**. And while you can manually enter a static friendly name when you add a device, you can instead use lookup values to standardize the friendly name and make it a valuable identifier.

A common friendly name format can be constructed with the following lookup values.

```
{EnrollmentUser} {DeviceModel} {DeviceOperatingSystem} {DeviceSerialNumberLastFour}
```

If you enter this string in the **Expected Friendly Name** text box, it produces a friendly name that appears this way on the **Device List View**.

```
jsmith iPad iOS GHKD
```

This friendly name instantly provides you with at least three useful pieces of information. And with the last four digits of the device serial number at the end, the friendly name is almost sure to be unique.

Data Overhead

When used, lookup values do not add to the device's memory with an extra load. Lookup values are a construct of the console itself, not something that is transferred to the device.

Static Strings Versus Lookup Values

Lookup values cannot be applied once a static string has been entered in a text box.

For example, assume that you have 100 devices to enroll. You add the first 50 devices using a manually entered static string for **Expected Friendly Name**. For the next 50 devices, you opt to use a lookup value for **Expected Friendly Name** instead. Those 100 devices, half with static friendly names and the other half with lookup values, can coexist perfectly well. There is no issue with mixing and matching static strings and lookup values.

However, you cannot return to the first 50 devices and replace the static string-friendly name with a lookup value.

Custom Lookup Values

You can use the Custom Attributes feature to make your own lookup values. You can then use these custom lookup values in the same manner as ordinary lookup values.

Privacy for BYOD Deployments 13

One of the biggest concerns for BYOD end users is the privacy of the personal content on devices managed under Workspace ONE UEM. Your organization must assure employees that their personal data is not subject to corporate oversight.

With Workspace ONE UEM, you can ensure the privacy of personal data by creating customized privacy policies that do not collect personal data based on the device ownership type. In addition, you can define granular privacy settings to disable the collection of the personally identifiable information and disallow certain remote actions to employee-owned devices to ensure employee privacy.

You must inform your end users about how their data is collected and stored when they enroll into Workspace ONE UEM.

For more information about how VMware handles information collected through Workspace ONE UEM, such as analytics, see the VMware Privacy Policy at https://www.vmware.com/help/privacy.html.

Important Countries and jurisdictions have differing regulations governing the data that can be collected from end users. Your organization must thoroughly research the applicable laws before you configure your BYOD and privacy policies.

Configure Privacy Settings

End-user privacy is a major concern for you and your users. Workspace ONE UEM provides granular control over what data is collected from users and what collected data is viewable by admins. Configure the privacy settings to serve both your users and your business needs.

- Review and adjust privacy policies according to device ownership, which lets you align with data privacy laws in other countries or legally defined restrictions.
- Ensure that certain IT checks and balances are in place, preventing overload of servers and systems.

Important Each jurisdiction has its own regulations governing what data can be collected from end users. Research these regulations thoroughly before configuring your privacy policies.

1 Navigate to **Devices > Device Settings > Devices & Users > General > Privacy**.

2 Select the appropriate setting for **GPS**, **Telecom**, **Applications**, **Profiles**, and **Network** data collection.

	**Collect and Display** – User data is collected and displayed in the UEM console.
	**Collect Do Not Display** – User data is collected for use in reports but is not displayed it in the UEM console.
	Do Not Collect – User data is not collected and therefore it is not displayed.

3 Select the appropriate setting for the **Commands** that can be performed on devices. Consider disabling all remote commands for employee-owned devices, especially full wipe. This disablement prevents inadvertent deletion or wiping of an end user's personal content. If you disable the wipe function for select iOS ownership types, users do not see the "Erase all content and settings" permission during enrollment.

	**Allow** – The command is made on devices without permission from the user.
	**Allow With User Permission** – The command is made on devices but only with the permission of the user.
	Prevent – The command does not run on devices.

4 If you are going to allow remote control, file manager, or registry manager access for Android/ Windows Rugged devices, consider using the **Allow With User Permission** option. This option requires the end user to consent to admin access on their device through a message prompt before the action is performed. If you opt to allow use of any commands, explicitly mention these commands in your terms of use agreement.

5 For **User Information**, select **Display** or **Do Not Display** in the Console for the **First Name**, **Last Name**, **Phone Number**, **Email Accounts**, and **user name** data.

6 If an option other than **user name** is set to **Do Not Display**, that data displays as "Private" wherever it appears in the UEM console. Options you set to **Do Not Display** are not searchable in the console. When a user name is set to **Do Not Display**, the user name displays as "Private" only on the Device List View and Device Details pages. All other pages in the UEM console show the user name of the enrolled user.

7 You can encrypt personally identifiable information, including first name, last name, email address, and telephone number. Navigate to **Groups & Settings > All Settings > System > Security > Data Security** from the Global or Customer-level organization group you want to configure encryption for. Enabling encryption, selecting which user data to encrypt, and selecting **Save** encrypts user data. Doing so limits some features in the UEM console, such as search, sort, and filter.

8 Select whether to **Enable** or **Disable** the **Do Not Disturb Mode** on the device. This setting lets user devices ignore MDM commands for a specified period. When Enabled, you can select a grace period or activation time in minutes, hours, or days, after which the **Do Not Disturb Mode** expires.

9 Select to **Enable** or **Disable** the **User-Friendly Privacy Notice** on the device.

10 When **Enabled**, you may choose **Yes** (display a privacy notice) or **No** (do not display a privacy notice) for each ownership level: **Employee Owned**, **Corporate - Dedicated**, **Corporate - Shared**, and **Unknown**.

11 Click **Save**. Privacy settings is a restricted action so you must enter your four digit console PIN to continue.

Privacy Notice Deployment

Privacy notices are automatically delivered based on the organization group and device ownership of the device connecting. You may choose to display a privacy notice for each ownership type: **Employee Owned**, **Corporate - Dedicated**, **Corporate - Shared**, and **Unknown**.

When you assign an ownership type to receive privacy notices, all users in the selected ownership type receive the privacy notification immediately as a Web clip. If you inserted the privacy notice lookup value `PrivacyNotificationUrl` in your message template, then the message includes a URL where the user can read the privacy notice.

Users receive the privacy notice automatically if:

- They enroll a new device and they are of an ownership type for which the privacy notice is enabled.
- They currently use an enrolled device and their ownership is changed post-enrollment to a type that is assigned the Web clip.

To learn how to deploy a privacy notice as part of a device activation, see Register an Individual Device.

Create a Privacy Notice for BYOD Users

Inform your users about what data your company collects from their enrolled devices with a customized privacy notification. Work with your legal department to determine what message about data collection you communicate to your end users.

1 Navigate to **Groups and Settings > All Settings > Devices and Users > General > Message Templates**.

2 Select **Add** to create a template. If you have already created a privacy notification template, select it from the list of available templates to use or edit it.

3 Complete the **Add/Edit Message Template** settings.

Setting	Description
Name	Enter a name for the notification template.
Description	Enter a description of the template you are creating.
Category	Select **Enrollment**.
Type	Select **MDM Device Activation**.
Select Language	Select the default language for your template. Use the **Add** button to add more default languages for a multi-language delivery.
Default	Assigns this template as the default message template.
Message Type	Select one or more message types: **Email**, **SMS**, or **Push** message.

4 Create the notification content. The message types that you selected in the **Message Type** selection determine which messages appear for you to configure.

Element	Description
Email	
Email Content Formatting	Choose whether your email notification is delivered as **Plain Text** or **HTML**.
Subject	Enter the subject line for your email notification.
Message Body	Compose the email message to send to your users. The editing and formatting tools that appear in this text box depend on which format you chose in the **Email Content Formatting** selection. If you have enabled the Visual Privacy Notice, include the lookup value `PrivacyNotificationUrl` in the message body.
SMS	
Message Body	Compose the SMS message to send to your users. If you have enabled the Visual Privacy Notice, include the lookup value `PrivacyNotificationUrl` in your message body.
Push	
Message Body	Compose the Push notification to send to your users. If you have enabled the Visual Privacy Notice, include the lookup value `PrivacyNotificationUrl` in your message body.

5 Select **Save**.

Privacy Best Practices

Striking a balance between your business needs and the privacy concerns of your employees can be challenging. There are a few simple practices that can manage Privacy Settings to strike the best balance.

Important Every deployment is different. Tailor these settings and policies that fit your organization in the best way by consulting with your own legal, human resource, and management teams.

User Information for Privacy Best Practices

In general, you display user information such as the first name, last name, phone number, and email address for both employee-owned and corporate-owned devices.

Application Information for Privacy Best Practices

In general, it is appropriate to set the collection of application information to either **do not collect** or **collect and do not display** for employee-owned devices. This setting is important because public apps installed on a device, if viewed, can be considered personally identifiable information. For corporate-owned devices, Workspace ONE UEM records all installed applications on the device.

If Do Not Collect is selected, only personal application information is not collected. Workspace ONE UEM collects all managed applications, whether public, internal, or purchased.

Remote Commands for Privacy Best Practices

Consider disabling all remote commands for employee-owned devices. However, if you allow remote actions or commands, explicitly mention these remote actions and commands in your terms of use agreement.

GPS Coordinate Collection for Privacy Best Practices

The collection of GPS coordinates relates to privacy concerns in a fundamental way. While it is not appropriate to collect GPS data for employee-owned devices, the following notes apply to all devices enrolled in Workspace ONE UEM.

- Only the Workspace ONE Intelligent Hub relays device GPS location data back to the UEM console.
    - Other apps that use the Workspace ONE SDK such as VMware Browser, Content, Boxer, and so forth, do not report GPS data back to the UEM console.

- GPS is typically used for lost or stolen devices. It is also used when knowing the location of a device is inherently part of the Workspace ONE UEM console function such as Geofencing.
- When GPS data is reported, Workspace ONE UEM defines a 1-kilometer region around this location. It then reports location information whenever the device moves outside the region.

Telecom Data for Privacy Best Practices

It is only appropriate to collect telecom data for employee-owned devices if they are a part of a stipend where cellphone expenses are subsidized. In this case, or for corporate-owned devices, consider the following about data you can collect.

- **Carrier/Country Code** – Carrier and Country Code are recorded and can be used for telecom tracking purposes. Telecom plans can be set up and devices can be assigned to the appropriate plan based on their carrier and country. This information can also be used to track devices by home carrier and home country or by current country and current carrier.
- **Roaming Status** – This status can be used to track which devices are in a 'Roaming' or 'Not Roaming' state. Compliance policies can be set up to disable voice and data use while the device is roaming or you can also apply other compliance actions. Also, if the device is assigned to a telecom plan, Workspace ONE UEM can track data use while roaming. Collecting and monitoring roaming status can be helpful in preventing large carrier charges due to roaming.
- **Cellular Data Use** – The data use in terms of total bytes sent and received. This data can be collected for each cellular device. If the device is assigned to a telecom plan, you can monitor data use based on a percentage of total data amount per billing cycle. This feature allows you to create compliance policies based on the percentage of data used and is helpful in preventing large carrier overage charges.
- **Cell Use** – The voice minutes that can be collected for each cellular device. Similar to data, if the device is assigned to a telecom plan, you can monitor use based on a percentage of minutes per billing cycle. This method allows you to create compliance policies based on the percentage of minutes used and can be helpful in preventing large carrier overage charges.
- **SMS Use** – The short message service (SMS) data that can be collected for each cellular device. Similar to data, if the device is assigned to a telecom plan, you can monitor SMS use based on a percentage of messages per billing cycle. This method allows you to create compliance policies based on the percentage of messages used. Monitoring SMS use is helpful in preventing large carrier overage charges.

User Data Collection from BYOD End Users

The Workspace ONE UEM infrastructure collects and stores many types of user-generated data. The following matrix matches each data type to the platforms and operating systems from which the data can be collected.

Use this matrix to determine which data collection is necessary for your deployment. Workspace ONE UEM also defines optional data that you can collect, such as Bluetooth MAC. You can configure these options and assign privacy settings by ownership type: dedicated corporate, shared corporate, and employee owned.

For more information about how VMware handles information collected through Workspace ONE UEM, such as analytics, see the VMware Privacy Policy at https://www.vmware.com/help/privacy.html.

✓ - Can be collected.

X - Cannot be collected.

✓* - Can be collected on Workspace ONE Intelligent Hub deployments.

✓** - Can be collected on Workspace ONE Intelligent Hub or iOS 9.3+Supervised Mode deployments.

	Android	Apple iOS	macOS	Windows Rugged	Windows Desktop
Application Tracking					
View installed internal apps.	✓	✓	✓	X	✓
View app versions	✓	✓	✓	X	✓
Capture app status	✓	X	✓	X	✓
Certificates					
View list of installed certificates	✓	✓	✓	X	✓*
Asset Tracking					
Device Name	✓	✓	✓	✓	✓
Device UDID	✓	✓	✓	✓	✓
Phone Number	✓	✓	X	✓	✓
IMEI/MEID Number	✓	✓	X	✓	✓
Device serial number	✓	✓	✓	✓	✓
IMSI number	✓	X	X	✓	✓
Device model	✓	✓	✓	✓	X
Device model name (Friendly)	X	✓	✓	✓	X

	Android	Apple iOS	macOS	Windows Rugged	Windows Desktop
Manufacturer	✓	✓	✓	✓	✓
OS Version	✓	✓	✓	✓	✓
OS Build	✓	X	✓	✓	✓
Firmware/kernel version	X	X	✓	X	X
Track device errors	X	X	✓	✓	✓
Device Status					
Battery available	✓	✓	✓	✓	✓
Battery capacity	✓	✓	✓	✓	X
Memory available	✓	✓	✓	✓	X
Memory capacity	✓	✓	✓	✓	X
Location					
GPS tracking	✓	✓**	✓	✓	✓
Bluetooth Data					
USB Data					
Network					
Wi-fi IP Address	✓	✓	✓	✓	✓
Wi-fi MAC	✓	✓	✓	✓	✓
Wi-fi signal strength	X	X	✓	✓	✓
Carrier Settings version	✓	✓	X	X	X
Cell signal strength	✓	X	X	X	X
Cell technology (none, GSM, CDMA)	✓	✓	X	X	X
Current MCC	✓	✓	X	X	X
Current MNC	✓	✓	X	X	X
SIM card number	✓	✓	X	X	✓
SIM carrier network	✓	✓	X	X	X
Subscriber MNC	✓	✓	X	X	X
Bluetooth MAC	✓	✓	✓	X	X
Show IP addresses.	✓	✓	✓	X	X

	Android	Apple iOS	macOS	Windows Rugged	Windows Desktop
Show LAN adapters.	X	X	✓	X	X
Show MAC address.	✓	✓	✓	X	X
Roaming					
Detect roaming status.	✓	✓	X	X	X
Disable Push notifications when roaming.	X	✓	X	X	X
Voice roaming enabled (allowed).	X	✓	X	X	X
Data Usage					
Track data usage through cell network	✓	✓	X	X	X
Track data usage through Wi-fi network	X	X	X	X	X
Calls					
Track call history	✓	X	X	X	X
Messages					
Track SMS history	✓	X	X	X	X
Cellular Status					
Current Carrier network	✓	✓	X	X	X
Current network status	✓	✓	X	X	X
Remote View					
Remotely control device	✓	X	✓	✓	✓
Screen capture (save, email, print, and so on)	✓	X	✓	✓	✓
Screen sharing (remote view within apps)	✓	✓	X	✓	✓
File Manager					
Access device file manager	✓	X	✓	✓	✓
Access device registry manager	X	X	X	✓	✓
Copy files	✓	X	✓	✓	✓
Create folders.	✓	X	✓	✓	✓
Download files from device.	✓	X	✓	✓	✓

	Android	Apple iOS	macOS	Windows Rugged	Windows Desktop
Move files	✓	X	✓	✓	✓
Rename folders and files.	✓	X	✓	✓	✓
Upload files to device	✓	X	✓	✓	✓

Terms of Use for BYOD End Users

For liability reasons, you must inform employees about the data that is captured and the actions that are allowed on devices enrolled in Workspace ONE UEM. To help communicate your strategy, create Terms of Use agreements in Workspace ONE UEM.

Users are prompted to read and accept the terms of use you configure before they can enable MDM on their personal devices. By assigning Terms of Use agreements based on the ownership type, you can create and distribute different agreements for corporate and BYOD users.

After your organization has written its Terms of Use agreement, consider giving it to end users in a one to two-page white paper that omits unnecessary legal language. This white paper is not the official Terms of Use to which end users agree, but instead serves to communicate your corporate policies. Ideally, end users do not see the terms of use for employee-owned devices for the first time when they enroll their device. Be upfront about what end-user information you collect and how your BYOD policies affect them.

Restrictions for BYOD Devices

Workspace ONE UEM permits you to deploy different security policies and restrictions to employee-owned and corporate-dedicated devices.

Using restriction profiles, you can set tight restrictions for corporate-dedicated devices, and looser restrictions for employee-owned devices. For example, restrictions to apps like YouTube or native App Stores are not typically deployed to employee-owned devices. Instead, you can create security profiles and restrictions that increase the level of device security without having a negative impact on functionality.

Device-Agnostic Restrictions

Workspace ONE UEM makes the following restrictions available for every device and platform:

- **Encrypted backups** – Protect all backups with data encryption for BYOD devices with access to corporate content.
- **Force fraud warning in supported browsers** – Require users to acknowledge all warnings issued by the browser when it detects a suspicious site.

- **Disable moving emails** – Prohibit the exposure of sensitive corporate data by disabling the ability to forward a corporate email to a personal account, or open it in third-party applications.

Platform-Specific Restrictions

Each platform has its own set of enforceable restrictions. Evaluate these restrictions individually to determine their value to your deployment. Some, like iOS restrictions limited to supervised devices, do not apply, because employee-owned devices must not be enrolled with Apple Configurator.

- You can create security profiles and restrictions by navigating to **Resources > Profiles & Baselines > Profiles** and selecting **Add**, then selecting the appropriate platform.
- If you create profiles specifically for employee-owned devices, only assign them to Smart Groups based on Ownership Type: Employee-Owned. For more information, see Smart Groups.

For more information about creating security profiles and restrictions, see Add a Compliance Policy.

Enterprise Wipe for BYOD Devices

An essential aspect of your BYOD deployment is removing corporate content when an employee leaves, or when a device is lost or stolen. Workspace ONE UEM allows you to perform an Enterprise Wipe on devices to remove all corporate content and access, but leaves personal files and settings untouched.

While a Device Wipe restores a device to its original factory state, Workspace ONE UEM lets you decide how far an Enterprise Wipe goes when applying to public and purchased VPP applications that sit in a gray area between corporate and employee-owned devices. An Enterprise Wipe also unenrolls the device from Workspace ONE UEM and strips it of all content enabled through MDM. This content includes email accounts, VPN settings, Wi-Fi profiles, secure content, and enterprise applications.

If you used Apple Volume Purchase Plan redemption codes for devices running iOS 6 and earlier, you cannot reclaim any redeemed licenses for that application. When installed, the application is associated to the user App Store account. This association cannot be undone. However, you can redeem license codes used for iOS 7 and later.

- **Device Wipe** – Send an MDM command to wipe a device clear of all data and operating system. This action cannot be undone.
  - iOS Device Wipe Considerations
    - For iOS 11 and below devices, the device wipe command also wipes the Apple SIM data associated with the devices.

        - For iOS 11+ devices, you can preserve the Apple SIM data plan (if existed on the devices). Select the **Preserve Data Plan** check box on the Device Wipe page before sending the device wipe command.
        - For iOS 11.3+ devices, you have an extra option to skip the **Proximity Setup** screen while sending down the device wipe command. When the option is enabled, the Proximity Setup screen is skipped in the Setup Assistant, preventing the device user from seeing the Proximity Set up option.
    - For Windows Desktop Devices, you can select the type of device wipe.
        - **Wipe** - This option wipes the device of all content.
        - **Wipe Protected** - This option is similar a normal device wipe but the device end user cannot circumvent the action. The Wipe Protected command keeps trying to reset the device until it is successful. In some device configurations, this command can leave the device unable to start.
        - **Wipe and Persist Provisioning Data** - This option wipes the device but specifies that provisioning data be backed up to a persistent location. After the wipe runs, the provisioning data is restored and applied to the device. The provisioning folder is saved. You can find the folder by navigating on the device to `%ProgramData%\Microsoft\Provisioning`.
- **Enterprise Wipe** – Enterprise Wipe a device to unenroll and remove all managed enterprise resources including applications and profiles. This action cannot be undone and re-enrollment is required before Workspace ONE UEM can manage this device again. This device action includes options to prevent future re-enrollment and a **Note Description** text box for you to add information about the action.
    - Enterprise Wipe is not supported for cloud domain-joined devices.

Perform an Enterprise Wipe for a BYOD Device

An enterprise wipe unenrolls the device from Workspace ONE UEM and strips it of all enterprise content, including email accounts, VPN settings, profiles, and applications.

1 In the Workspace ONE UEM console, select the appropriate organization group.

2 Navigate to **Devices > List View** and select a device or multiple devices from the list.

3 The Device Details view displays a list of actions you can perform under the **More** drop-down in the top right. Select **Enterprise Wipe**.

4 In the confirmation dialog box, select **Prevent Re-Enrollment** to prevent this device from enrolling again.

5 Enter a Security PIN if applicable, and then select **Enterprise Wipe** to finish the action.

Disable Full Wipe for BYOD Devices

For security and privacy reasons, you can disable the ability to perform a full wipe on a BYOD Device.

If you disable full wipe for select iOS ownership types, then users enrolling under that ownership type do not see "Erase all content and settings" permissions during profile installation.

1 Navigate to **Devices > Device Settings > Devices & Users > General > Privacy**.

2 Scroll down to the **Commands** section and find the **Employee Owned** column.

3 Set the **Full Wipe** option to **Prevent** and select **Save**.

Resources

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Resources in Workspace ONE UEM powered by AirWatch are like puzzle pieces. representing individual elements you install or configure on devices. Resources include apps & books, profiles, updates, sensors, scripts, time windows, and installation orders. When pieced together, the picture they make is the secure and reliable functioning of your mobile fleet.

Apps & Books

Access and manage the app catalog, book catalog, and Volume Purchase Program (VPP) orders. Also view application analytics and logs with application settings, including app categories, smart groups, app groups, featured apps, geofencing, and profiles associated with apps. For more information, see Introduction to Application Lifecycle Management.

Profiles & Baselines

Profiles – Device Profiles are the primary means by which you manage devices in Workspace ONE UEM. They represent the settings that, when combined with compliance policies, help you enforce corporate rules and procedures. For more information, see Technical Preview: Profiles and Profile Resources Used in Workflows.

Baselines – Keeping your devices configured to best practices is a time-consuming process. You can secure all your devices with industry-recommended settings and configurations. Workspace ONE UEM curates these best practices into configurations called Baselines. These configurations significantly reduce the time it takes to set up and configure Windows devices. For more information see Using Baselines.

Device Updates

Manage all your device update files, including the entire installation status history of each update, all in one location. Device Updates is a platform-specific feature. Consult the platform guides for Windows Desktop, Android, and iOS for details.

Sensors

Sensors are a special kind of script. A script is a programmable command that is run-on-demand.

A sensor is also programmable but it excels as a programmable condition. The sensor name becomes the key and that key's value is sourced by executing actions based on external triggers like an agent action, a schedule, or an event. The action can also be made on-demand. Sensor keys and their resulting values are then used as conditions for assignments.

For more information, see Creating Sensors for Windows Desktop Devices and Sensors for macOS Devices.

Scripts

A script is a programmable resource that is executed for the purpose of collecting values or affecting a change to the device. Scripts are triggered on the device by sensor conditions, run on-demand, or through the course of a Freestyle Workflow.

For more information, see Scripts for Windows Desktop and Scripts for macOS Devices.

Time Window

Updating devices with provisioned and other downloadable content can be a lengthy process. The Time Window feature allows you to schedule those downloads outside of peak work hours, using the device's local time. You no longer have to choose between keeping your device up to date and being productive.

For more information, see Technical Preview: Make a Time Window and Assign it to Devices.

Orders

Orders refer to content purchased through Apple Business Manager's Volume Purchase Program (VPP) and the distribution of that content using redemption codes and managed distribution. For more inforamtion about orders and VPP, see the Volume Purchase Program topic in the Apple Business Manager Guide.

This chapter includes the following topics:

- Technical Preview: Make a Time Window and Assign it to Devices

Technical Preview: Make a Time Window and Assign it to Devices

Time Windows let you schedule updates and content delivery in Workspace ONE UEM that takes into account your business and maintenance hours. Make your Time Window by scheduling start and end dates, duration, and repeat options.

Currently, Time Windows is supported by Windows Desktop devices only.

If you already have a time window defined and you want to use it, skip directly to step 2 to assign it.

Note Workspace ONE UEM offers the time window feature as a technical preview. Technical preview features are not fully tested and some functionality might not work as expected. However, these previews help Workspace ONE UEM improve current functionality and develop future enhancements. To use a technical preview feature, contact your VMware representative.

Prerequisites

Before you can view, make, or assign a time window, your admin account must have a role that includes the role permissions for these activities. For more information, see Admin Roles.

Permission Category Path	Permission Name
Device Management > Time Window	Manage Time Window (make new, edit, and assign)
	View Time Window
	View Time Window on Device detail page

Procedure

1 Make a Time Window.

   a Navigate to **Resources > Time Windows** and select the **New** button.

   b Complete the **Name**, **Description**, **Category**, and **Time** options.

   Category – You can make a Time Window dedicated to Maintenance Hours and a separate Time Window for Business Hours, allowing you to tailor a schedule suited for each. This arrangement can be useful in high traffic, high availability environments.

   Time – You can select the timeframe on which your Time Window is based. If your updates depend greatly upon the difference between business hours and non-business hours, then Device Time can be used for your Time Window. However, if an update needs to be synchronized across all devices regardless of local time, then you can select UTC for that particular Time Window.

c Complete the **Repeat**, **Start Date**, **End Date**, and **Duration** options. The minimum Duration period is 1 hour.

You can add more than one schedule per defined time window by selecting the **Add New Schedule** button, then making another set of **Repeat**, **Start Date**, **End Date**, and **Duration** selections.

The reasons for multiple schedules per time window can vary: you may have multiple activity peaks in your maintenance hours, you may have mutiple valleys in your business hours, and so forth.

When multiple schedules exist, you can delete a specific schedule by selecting the trash can icon in the upper-right corner of the window.

d Finalize the time window.

- **Save** – Save the time window without assigning it.
- **Save & Assign** – Save and immediately assign the time window.

2 Assign a Time Window to devices.

a Navigate to **Resources > Time Window**. The Time Window List View displays.

b Locate and select the time window you want to apply to your device by selecting the radio button to the left of its entry in the listing.

c Select the **Assign** button that displays above the listing.

The Assignments screen displays.

d Assign the Time Window to a smart group using the **Smart Groups** search bar. For details, see Create a Smart Group. Keep in mind that Time Windows currently only work on Windows Desktop devices. Any smart group selected here that includes devices that are not Windows Desktop, the Time Window will not be assigned to those devices.

e Once you have selected a smart group in the **Smart Groups** search bar, select the **Assign** button to complete this step.

f Use the Time Window in a Workflow Condition. Follow the steps shown in Create a Workflow with a Time Window Condition.

What to do next

Track a device's time window by viewing that device's **Details View** by navigating to **Details > List view** then selecting a specific device from the listing. For more information, see Chapter 8 Device Details.

You can direct end users to select **Sync Device** from the Workspace ONE Intelligent Hub app, which updates the sync status as reported in **Details View**.

Time window events are logged by the event logger when the minimum logging level is set to **Information** or **Debug**. For details, see Event Logs.

Shared Devices

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Shared Device/Multi-User Device functionality in Workspace ONE UEM ensures that security and authentication are in place for every unique end user. Shared devices can also allow only specific end users to access sensitive information.

Issuing a device to every employee in certain organizations can be expensive. Workspace ONE UEM lets you share a mobile device among end users in two ways: using a single fixed configuration for all end users, or using a unique configuration setting for individual end users.

When administering shared devices, you must first provision the devices with applicable settings and restrictions before deploying them to end users. Once deployed, Workspace ONE UEM uses a simple login or log-out process for shared devices in which end users simply enter their directory services or dedicated credentials to log in. The end-user role determines their level of access to corporate resources such as content, features, and applications. This role ensures the automatic configuration of features and resources that are available after the user logs in.

The login or log-out functions are self-contained within the Workspace ONE Intelligent Hub. Self-containment ensures that the enrollment status is never affected, and that the device is managed whether it is in use or not.

Shared Device capabilities are also possible natively on Apple iPads integrated with Apple Business Manager. This functionality called Shared iPads for Business leverages the user's Managed Apple ID for login and does not take place in the Workspace ONE Intelligent Hub for login and logout. To know more about configuring Shared iPads for Business with Apple Business Manager and steps to achieve this functionality, see **Shared iPads for Business** in *Introduction to Apple Business Manager Guide* available on docs.vmware.com.

Shared Devices Capabilities

There are basic capabilities surrounding the functionality and security of devices that are shared across multiple users. These capabilities offer compelling reasons to consider shared devices as a cost-effective solution to making the most of enterprise mobility.

Functionality

- Personalize each end-user experience without losing corporate settings.
- Logging in a device configures it with corporate access and specific settings, applications, and content based on the end-user role and organization group (OG).

- Allow for a log in/log out process that is self-contained in the Workspace ONE Intelligent Hub or Workspace ONE Access.
- After the end user logs out of the device, the configuration settings of that session are wiped. The device is then ready for login by another end user.

Security

- Provision devices with the shared device settings before providing devices to end users.
- Log in and log out devices without affecting an enrollment in Workspace ONE UEM.
- Authenticate end users during a login with directory services or dedicated Workspace ONE UEM credentials.
- Authenticate end users using Workspace ONE Access.
- Manage devices even when a device is not logged in.

Platforms That Support Shared Devices

The following devices support shared device/multi-user device functionality.

- Android 4.3 or later
- iOS devices with Workspace ONE Intelligent Hub 4.2 or later.
  - For details about logging in and out of shared iOS devices, see the topic *Log In and Log Out of Shared iOS Devices* in the **iOS Platform Guide**, available on docs.vmware.com.
- MacOS devices with Workspace ONE Intelligent Hub 2.1 or later.

Define the Shared Device Hierarchy

While strictly optional, making an organization group (OG) specific to shared devices offers many benefits due to multi-tenancy and inherited device settings.

If you have a large number of shared devices in your fleet and you want to manage them apart from single user devices, you can make a shared device-specific OG. Making a shared device hierarchy in your OG structure is optional. Features like smart groups and user groups mean you do not have to rely strictly on OG hierarchy design to simplify device management.

However, having a shared device OG (or nested OGs) simplifies device management by enabling you to standardize device functionality through profiles, policies, and device inheritance without the processing overhead required by a smart group or a user group.

1 Navigate to **Groups & Settings > Groups > Organization Groups > Organization Group Details**.

  Here, you can see an OG representing your company.

2 Ensure the **Organization Group Details** displayed are accurate, and then use the available settings to make modifications, if necessary. If you make changes, select **Save**.

3 Select **Add Child Organization Group**.

4 Enter the following information for the first OG underneath the top-level OG.

Setting	Description
Name	Enter a name for the child organization group (OG) to be displayed. Use alphanumeric characters only. Do not use odd characters.
Group ID	Enter an identifier for the OG for the end users to use during the device login. Group IDs are used during the enrollment of group devices to the appropriate OG. Ensure that users sharing devices receive the **Group ID** as it might be required for the device to log in depending on your Shared Device configuration. If you are not in an on-premises environment, the Group ID identifies your organization group across the entire shared SaaS environment. For this reason, all Group IDs must be uniquely named.
Type	Select the preconfigured OG type that reflects the category for the child OG.
Country	Select the country where the OG is based.
Locale	Select the language classification for the selected country.
Customer Industry	This setting is only available when **Type** is Customer. Select from the list of Customer Industries.
Time Zone	Select the time zone for the OG's location.

5 Select **Save**.

Log In and log out of Shared macOS Devices

Multiple users can log in to and out of a macOS shared device, activating the automatic push of device profiles.

Log In to a macOS Device – Using assigned Network credentials, log in to a macOS device that has been staged and you receive the profiles assigned to your account in Workspace ONE UEM.

Log out of a macOS Device – The standard macOS log-out procedure also logs the device out of your assigned Workspace ONE UEM user profile.

Log In and Log Out of Shared Android Devices

To use shared device functionality on Android devices, enroll the device using the Workspace ONE Intelligent Hub and set the VMware Workspace ONE Launcher as the default home screen. The Workspace ONE Launcher is automatically downloaded during enrollment.

Once the application is installed and set as the default home screen, the device is in a checked-in state. While in this state, the end user is unable to navigate away from this page and the device prompts the user to check out. To remove the profile and make the entire device accessible again, perform an Enterprise Wipe on the staging user device from the Workspace ONE UEM console.

1 From the Workspace ONE Launcher log in page, users must enter their Group ID, user name, and password. If **Prompt User for Organization Group** is enabled on the console, end users are required to enter a **Group ID** to log in.

2 Select **Login** and accept the terms of use, if applicable.

The device is configured. Once logged in, user profiles are pushed down based on the smart group and user group associations.

What to do next: To log out of an Android device, select **Launcher Settings** and select **Log Out** (door icon).

Log In and Log Out of Shared iOS Devices

You can log in to and out of an iOS device that is shared across multiple users.

1 Run the Workspace ONE Intelligent Hub on the device.

2 Enter the end-user credentials.

If the device is already logged in to Workspace ONE Intelligent Hub, then users are prompted to enter an SSO Passcode. If the device is not logged in, then users are prompted to enter a user name and password. The profiles assigned to each user are pushed down based on the smart group and user group association.

Note If **Prompt User for Organization Group** is enabled, then end users are required to enter a **Group ID** to log in to a device.

3 Select **Login** and accept the **Terms of Use**.

Note If prompted for a passcode, users can create one in the Self-Service Portal. These passcodes are subject to an expiration period. As the expiration period nears, the Workspace ONE Intelligent Hub prompts users to change the passcode on the device. If users do not a change their passcode before it expires, users must return to the Self-Service Portal to create another passcode.

What to do next: To log out of an iOS device, run the Workspace ONE Intelligent Hub and select **Log Out** at the bottom.

Check In a Shared Device From the UEM Console

You can check in a device straight from the Workspace ONE UEM console, bypassing the need for the end user to check in the device using the installed Workspace ONE Intelligent Hub

When you check in a device using the UEM console, you effectively reset the enrollment to the multi staging user with the prescribed organization group, profiles, apps, and so on. On the device side, the Workspace ONE Intelligent Hub is restarted and the check-out screen displays.

This feature applies currently to iOS devices only. Devices that enrolled using a method other than the Workspace ONE Intelligent Hub (for example, Direct Enrollment, Workspace ONE, or Container) are not supported. Checking in devices in bulk from the console is not supported.

1 Navigate to **Devices > List View** and locate the shared iOS device you want to check in.

2 Select the **Friendly Name** of the device to display **Device Details**.

3 Select the **More Actions** button in the upper-right corner of the screen.

4 Under the **Management** section, select **Check In Device**.

Configure Shared Devices

Similar to single-user device staging, multi-user staging (a "shared device") allows an IT administrator to provision devices to be used by more than one user.

1 Navigate to **Groups & Settings > All Settings > Devices & Users > General > Shared Device**.

2 Select **Override** and complete the **Grouping** section.

Setting	Description
Group Assignment Mode	Configure devices in one of three ways: ■ Select **Prompt User for Organization Group** to have the end user enter a Group ID for an organization group upon login. With this method, you have the flexibility to provide access to the settings, applications, and content of the organization group entered. Using this approach, an end user is not restricted to accessing only the settings, applications, and content for the organization group to which they are enrolled. ■ Select **Fixed Organization Group** to limit your managed devices to settings and content applicable to a single organization group. Each end user who logs in to a device has access to the same settings, applications, and content. This method can be beneficial in a retail use case where employees use shared devices for similar purposes such as checking inventory. ■ Select **User Group Organization Group** to enable features based on both user groups and organization groups across your hierarchy. When an end user logs in to a device, they have access to specific settings, applications, and content based on their assigned role within the hierarchy. For example, an end user is a member of the 'Sales' user group, and that user group is mapped to the 'Standard Access' organization group. When that end user logs in to the device, the device is configured with the settings, applications, and content available to the 'Standard Access' organization group. You can map user groups to organization groups on the UEM console. Navigate to **Groups & Settings > All Settings > Devices & Users > General > Enrollment**. Select the **Grouping** tab and fill in the required details.
Always Prompt for Terms of Use	Prompts the end users to accept your **Terms of Use** agreement before they log in to a device.

3 Complete the **Security** section, as applicable.

Setting	Description
Require Shared Device Passcode	**(For iOS devices only)**Require users to create a Shared Device passcode in the Self-Service Portal to check out devices. This passcode is different from a Single Sign On passcode or a device-level passcode.
Require Special Characters	Require special characters in the shared device passcode, which includes characters such as @, %, &, and so forth.

Setting	Description
Shared Device Passcode Minimum Length	Set the minimum character length of the shared passcode.
Shared Device Passcode Expiration Time (days)	Set the length of time (in days) the shared passcode expires.
Keep Shared device Passcode for minimum time (days)	Set the minimum amount of time (in days) the shared device passcode must be changed.
Prompt users to change their Shared Device Passcode x (days) before expiration	**(For iOS devices only)** Set the number of days the user is reminded to change their shared device passcode before it expires. For best results, set a value less than the difference between the Expiration Time and minimum time you can keep the Shared Device Passcode.
Passcode History	Set the number of passcodes that are remembered by the system, providing a more secure environment by preventing the user from reusing old passcodes.
Auto Logout	Configure an automatic log out after a specific time period.
Auto Logout After	Set the length of time that must elapse before the **Auto Log out** function activates in **Minutes**, **Hours**, or **Days**.
iOS Single App Mode	Select this check box to configure Single App Mode, which locks the device into a single application when an end user logs in to the device. To check out an iOS device in Single App Mode, end users log in using their credentials. When the device is checked in again, it returns to Single App Mode. Enabling Single App Mode also deactivates the Home button on the device. **Note** Single App Mode applies only to Supervised iOS devices.

4 Configure the **Logout Settings**, as applicable.

Setting	Description
Clear Android App Data	Clear the app data when the user logs out of a shared device (checks it in).
Reinstall Android Apps	Use the drop-down to select whether to Always reinstall app between users or never reinstall app between users. For Android (Legacy) deployments, you can opt to reinstall app if the Hub cannot clear app data between users.
Clear Android Device Passcode	This setting controls whether the current Android device passcode is cleared when the user logs out (checks in) a multi-user shared device.
Allow PIN at Startup	Activate or deactivate Android Secure Startup, which requires an initial PIN entry to boot up the device. If deactivated, users cannot enable Secure Startup during passcode setup. If Secure Startup is already deactivated on the device, the device must be factory reset to enable it. This feature applies only to Android devices that do not have file-based encryption.
Clear iOS Device Passcode	This setting controls whether the current iOS device passcode is cleared when the user logs out (checks in) a multi-user shared device.

5 Select **Save**.

What to do next: For specific information about provisioning devices for single-user and multi-user device staging, see the topics Stage a Single-User Device and Stage a Multi-User Device.

Wipe Protection

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You can protect yourself against excessive device wipes and enterprise wipes by setting a wipe threshold in Workspace ONE UEM.

Remotely wiping a device of privileged corporate content, called an Enterprise Wipe, is one of the steps considered when a device becomes lost or stolen. It is meant as a safeguard against the threat of corporate content coming into contact with competitors. A Device Wipe is potentially more destructive, removing all content until the device returns to its factory state.

- **Device Wipe** – Send an MDM command to wipe a device clear of all data and operating system. This action cannot be undone.
  - iOS Device Wipe Considerations
    - For iOS 11 and below devices, the device wipe command also wipes the Apple SIM data associated with the devices.
    - For iOS 11+ devices, you can preserve the Apple SIM data plan (if existed on the devices). Select the **Preserve Data Plan** check box on the Device Wipe page before sending the device wipe command.
    - For iOS 11.3+ devices, you have an extra option to skip the **Proximity Setup** screen while sending down the device wipe command. When the option is enabled, the Proximity Setup screen is skipped in the Setup Assistant, preventing the device user from seeing the Proximity Set up option.
  - For Windows Desktop Devices, you can select the type of device wipe.
    - **Wipe** - This option wipes the device of all content.
    - **Wipe Protected** - This option is similar a normal device wipe but the device end user cannot circumvent the action. The Wipe Protected command keeps trying to reset the device until it is successful. In some device configurations, this command can leave the device unable to start.

    - **Wipe and Persist Provisioning Data** - This option wipes the device but specifies that provisioning data be backed up to a persistent location. After the wipe runs, the provisioning data is restored and applied to the device. The provisioning folder is saved. You can find the folder by navigating on the device to `%ProgramData%\Microsoft\Provisioning`.

- **Enterprise Wipe** – Enterprise Wipe a device to unenroll and remove all managed enterprise resources including applications and profiles. This action cannot be undone and re-enrollment is required before Workspace ONE UEM can manage this device again. This device action includes options to prevent future re-enrollment and a **Note Description** text box for you to add information about the action.
    - Enterprise Wipe is not supported for cloud domain-joined devices.

However, there are circumstances when scheduled processes such as the Compliance Engine and other automated directives wipe multiple devices. In addition to the automated wipes, an accidental wipe initiated by an administrator can be problematic. As an administrator, you might want to be informed when such actions are initiated and be given the chance to intervene.

Configure wipe protection settings by defining a wipe threshold, which is a minimum number of devices wiped within a certain amount of time. For example, if more than 10 devices are wiped within 20 minutes, you can place future wipes on hold automatically until after you validate the wipe commands.

You can review wipe logs to see when devices were wiped and for what reason. After reviewing the information, you can accept or reject the on-hold wipe commands and unlock the system to reset the wipe threshold counter.

Configure Wipe Protection Settings for Managed Devices

Set a wipe threshold for managed devices and notify administrators through email when the threshold is met. You can only configure these settings at the Global or Customer level organization group.

1 Navigate to **Devices > Lifecycle > Settings > Managed Device Wipe Protection**.

2 Configure the following settings.

Setting	Description
Wiped Devices	Enter the number of **Wiped Devices** that acts as your threshold for triggering wipe protection.
Within (minutes)	Enter the value for **Within (minutes)** which is the amount of time the wipes must occur to trigger wipe protection.

Setting	Description
Email	Select a message template to email to administrators. Create a message template for wipe protection by navigating to **Groups & Settings > All Settings > Devices & Users > General > Message Templates** and select **Add**, Next, select **Device Lifecycle** as the **Category** and **Wipe Protection Notification** as the **Type**. You can use the following lookup values as part of your message template. ■ {EnterpriseWipeInterval} – The value of **Within (minutes)** on the settings page. ■ {WipeLogConsolePage} – A link to the Wipe Log page.
To	Enter the email addresses of administrators who must be notified. These administrators must have access to the Wipe Log page.

For details, see Chapter 12 Lookup Values.

3 Select **Save**.

View Wipe Logs

You can view the **Wipe Log** page to see when devices were wiped and for what reason. After reviewing the information, you can accept or reject any on-hold wipe commands and unlock the system to reset the wipe threshold counter.

If the system is locked, then you see a banner at the top of the page indicating this status.

1 Navigate to **Devices > Lifecycle > Wipe Log**.

The **Report Device Wipe Log** resource manages access to the Wipe Log page, and is available by default for system admins, SaaS admins, and Workspace ONE UEM admins. You can add this resource to any custom admin role using the **Create Admin Role** page.

2 **Filter** the Wipe Log by the following parameters. Choose from the following.

- Date Range
- Wipe Type
- Status
- Source
- Ownership

3 View the list of devices and determine whether the presented devices are valid wipes.

Device pending actions have a status of "On Hold." Devices wiped before the threshold limit is reached display as "Processed".

a If they are valid wipes, then select each device and then select **Approve wipes** from the command list. The status changes to Approved.

b If they are not valid wipes, then select each device and then select **Reject wipes** from the command list. The status changes to Rejected.

4 Reset the device threshold counter and allow wipe commands to go through by selecting **Unlock System**.

The system allows future automated wipe commands until the threshold limit is exceeded again. You can only perform this action at a Global or Customer level organization group.