

Branding Integration Guide

Workspace ONE for Android

Android applications can be integrated with the VMware Workspace ONE® platform, by using its mobile software development kit. Complete the tasks below to utilize the branding features of the platform.

This document is part of the Workspace ONE Integration Guide for Android set.

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Introduction

The Workspace ONE platform supports the following types of branding.

- Static application branding.
- Enterprise branding.
- Dynamic branding.

For a quick overview of the elements that can be branded in the Workspace ONE user interface, see the [Splash Screen](#) and [Login Screen](#) images in the appendix to this document. The images are annotated to show brand elements in the SDK user interface.

This guide also covers the following independent branding options.

- Dark mode configuration.
- Notification icon.

Branding is implemented by the following platform components:

- Workspace ONE Unified Endpoint Manager (UEM) console.
- Workspace ONE mobile Software Development Kit (SDK).

Integration Tasks

The tasks detailed below will integrate your Android application with the branding support of the Workspace ONE platform. The tasks you will complete depend on which branding features are required.

- Static application branding.

Branding colors and images to be applied by the SDK can be configured in the application code. This is *static application branding*. Static application branding is built on the Android resources system.

To add static application branding to your application, follow the [Implement Static Application Branding](#) instructions.

- Enterprise branding support.

Branding colors and images for mobile applications can be configured in the UEM. This is *enterprise branding*. The enterprise branding configuration from the UEM gets applied by the SDK to its own user interface elements, such as the splash screen and the login screen.

Adding support for enterprise branding to an application is only a small amount of work for the developer, see [Support Enterprise Branding](#).

- Dynamic Branding.

Branding colors and images to be applied by the SDK can be provided at run time by the application code. This is *dynamic branding*. Dynamic branding requires implementation of a branding manager interface in the application code.

Dynamic branding offers the most flexibility to the application developer. To add dynamic branding to your application, follow the [Implement Dynamic Branding](#) instructions.

- Dark mode configuration.

The SDK user interface supports Android dark mode. The SDK will select dark mode according to configuration from the application code.

This is an independent branding option, separate to the other branding features. To use this option, follow the [Configure Dark Mode Selection](#) instructions.

- Notification icon.

The application code can provide a small icon for the SDK to apply to notifications that it posts, for example in the device status bar.

This is an independent branding option, separate to the other branding features. To use this option, follow the [Set a Notification Icon](#) instructions.

Some requirements analysis, leading to suggestions for which features to integrate in your application, may be found under [Use Cases](#). Compatibility of these features with each other is discussed under [Branding Feature Compatibility](#).

Screen capture images, annotated to show the elements that can be branded in the Workspace ONE user interface, can be found in the [Splash Screen](#) and [Login Screen](#) images in the appendix to this document.

Integration Guides

This document is part of the Workspace ONE Integration Guide for Android set.

See other guides in the set for

- an introduction to SDK integration in general.
- details of the base integration tasks for the Framework integration level, which must be done before the tasks in this document.

An overview that includes links to all the guides is available

- in Markdown format, in the repository that also holds the sample code:
<https://github.com/vmware-samples/...IntegrationOverview.md>
- in Portable Document Format (PDF), on the VMware website:
<https://developer.vmware.com/...IntegrationOverview.pdf>

Compatibility

Instructions in this document have been tested with the following software versions.

Software	Version
Workspace ONE SDK for Android	24.01
Workspace ONE management console	2306
Android Studio integrated development environment	2022.3.1

Use Cases

The following use cases can be read as a starting point for requirements analysis of branding.

Use Case: Customer Application

In some cases, a mobile application will be developed by a team at the same enterprise as its end users, and integrated with Workspace ONE. This type of application is referred to here as a *customer application*.

The following questions can be discussed to help establish the branding requirements for a customer application.

- What brand images should be shown in the SDK user interface when it appears in the application?

The answer could be one of the following, for example.

- No required images.
 - The application's own images, if the application has a brand.
 - The corporate logo, or other enterprise brand images.
 - Image requirement is more complicated than any of the above.
- Are application branding resources configured in the management console?
See the instructions for [how to configure enterprise branding](#) in the appendix to this document in case you need to check.
 - If resources are configured, do they reflect the desired brand for the application user interface?

If there are no required images, then the default SDK branding can be left in place. There is no need to implement static, enterprise, nor dynamic branding.

If the required images are from the enterprise's corporate brand, and they are configured in the console, then the suggested integration is to [Support Enterprise Branding](#). This will be the least amount of work and maintenance for the application development team.

If the required images are from the application's brand, then the suggested integration is to [Implement Static Application Branding](#). That is also the suggested integration if the required images are from the enterprise's corporate brand, but they aren't configured in the console.

If the image requirement is more complicated, then the suggested integration is to [Implement Dynamic Branding](#).

Use Case: Branded Partner Application

In some cases, a mobile application will be developed by an Independent Software Vendor (ISV) or other third party, and integrated with the Workspace ONE SDK for use at more than one customer enterprise. This type of application is referred to here as a *partner application*.

The typical partner application has its own brand, for example a logo that appears on the device home screen, app store, and elsewhere. The default integration would be to [Implement Static Application Branding](#). You will need to obtain or create image files and other resources that reflect the application brand.

Use Case: Branded Partner Application with Optional Override

In some cases a branded partner application, as described above, is required to support overriding of its branding by some customer enterprises that deploy the application.

For example, some customers might want to have their corporate logo shown instead of the application brand. Showing the corporate logo to end users might be felt to reinforce the association of the application with their employer.

This option can be supported by doing both integrations: [Implement Static Application Branding](#) and [Support Enterprise Branding](#).

Customers that want the override would configure their required logo as an application branding resource in their UEM console. See the instructions for [how to configure enterprise branding](#) in the appendix for the location of the configuration in the console.

Other Use Cases: Complex Branding Requirements

Some branding requirements are more complex than those covered by the above use cases. Some examples are:

- Generate brand images at run time.
- Change brand images without re-enrolment and without app upgrade on the device.
- Retrieve resources from the management console after enrolment has started but before completion, like the Workspace ONE Intelligent Hub.

In these cases, the suggested integration is to [Implement Dynamic Branding](#).

Branding Feature Compatibility

The branding features are compatible with each other as follows.

Static application branding and enterprise branding

Your application can have both its own static branding resources, and support enterprise branding as an override. In that case, the SDK will apply one or other branding, as follows.

- When the application starts for the first time after installation, the SDK will apply the static application branding.
- When the UEM server has been contacted by the SDK and at least the organizational group has been specified, the SDK will check whether enterprise branding has been configured.
- If enterprise branding isn't configured, then the SDK will continue to apply the static application branding.
- Otherwise, the SDK will retrieve the enterprise branding resources and apply them going forwards.

The enterprise branding can be partial, omitting some configurable images or colors. The SDK will apply static application branding resources where a UEM resource is omitted.

It can occur that enterprise branding resources are fetched and applied in the early stages of registration, but the end user then cancels, or registration isn't finalized for some other reason. In that case, enterprise branding will be applied next time the application starts.

Dynamic branding and other types of branding

A dynamic branding implementation can, at run time:

- Access static application resources.
- Access enterprise branding resources that have been retrieved from the UEM.
- Fetch custom branding resources from a server associated with the application.
- Generate branding resources programmatically.

The SDK will apply any or all of the above types of branding resources as directed by the dynamic branding implementation.

Dynamic branding can be compatible with static branding and with enterprise branding, depending on how it is implemented.

Independent branding options

The independent branding option implementations are compatible with static branding, enterprise branding, and dynamic branding.

Integration Paths Diagram

The following diagram shows the tasks and options for integrating each of the branding features. Framework base integration is a prerequisite to branding integration.

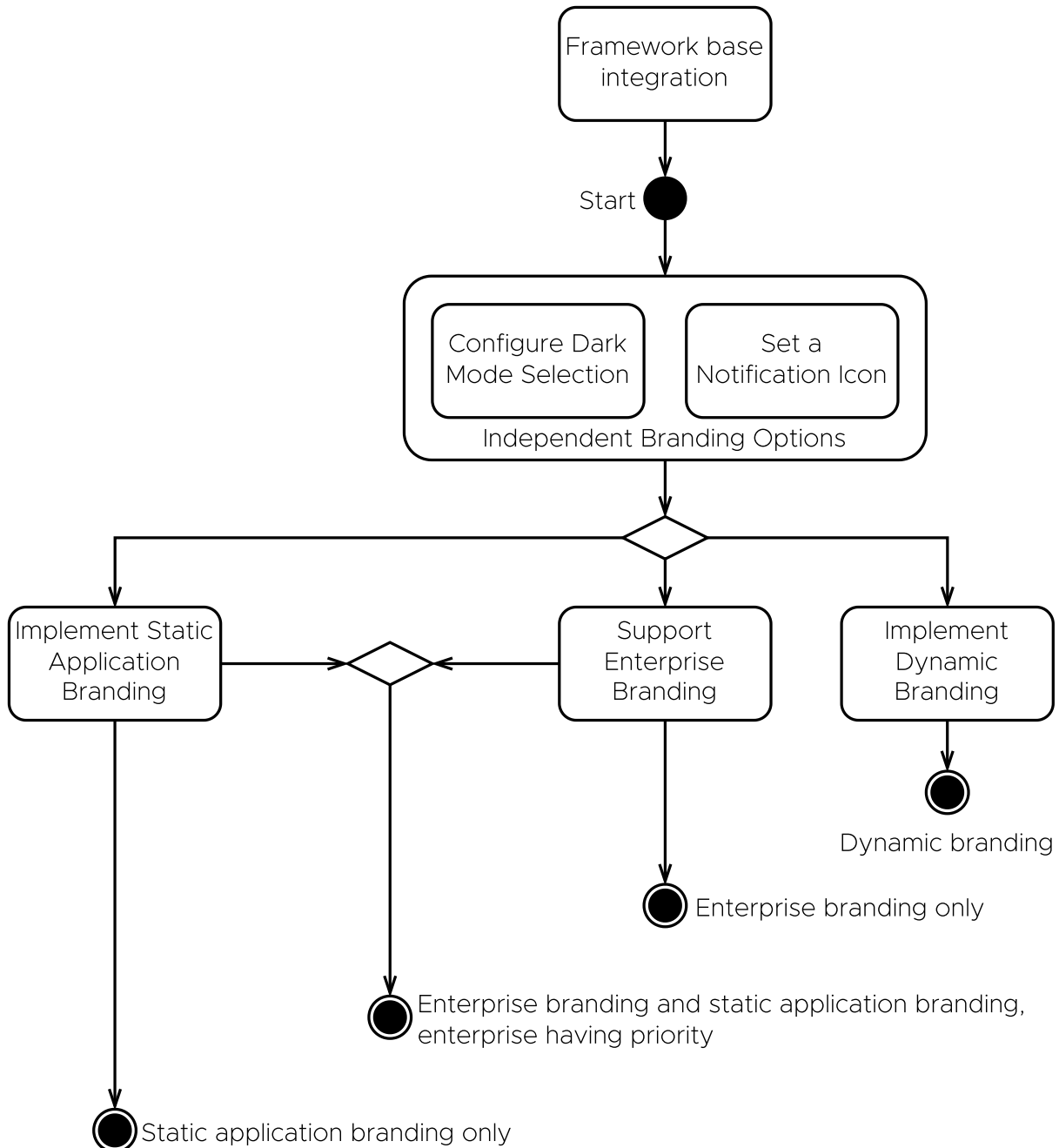


Diagram 1: Branding Feature Integration Paths

Task: Implement Static Application Branding

Implementing static application branding is an optional Workspace ONE platform integration task for Android application developers.

Static application branding is configured in the application code, using Android resources. The configuration can include colors and images. If your application has static branding resources, the SDK will render the configured colors and images in its own user interface elements.

Add brand resources to the project

First, add brand resources for colors and images to your Android Studio project. If you don't have final brand resources, you can create placeholders using the tools that come with Android Studio.

- You can create simple image resources with the Image Asset Studio.

Instructions can be found here:

<https://developer.android.com/studio/write/image-asset-studio#access>

The instructions in either of the following sections will help you create a suitable placeholder image.

- Create adaptive and legacy launcher icons.
- Create a notification icon.

Save your image either in **res/drawable**, or in **res/mipmap** for example.

- You can configure color values in Android Studio.

Instructions for [how to add a color resource to an Android application](#) can be found in the appendix to this document, if needed.

After adding your brand resources, you can move on to the next step.

Static style configuration

Add references to your brand resources to the application styles configuration.

The styles configuration can be opened as follows.

1. Open your project in Android Studio.
2. Under the application module, expand **res, values**, and then open the **styles.xml** file.

This snippet illustrates the configuration:

```
<resources xmlns:tools="http://schemas.android.com/tools">
  <style tools:override="true" name="SDKBaseTheme" parent="SDKVisionBaseTheme">
    <item name="awsdkSplashBrandingIcon">@mipmap/ic_splash</item>
    <item name="awsdkLoginBrandingIcon">@mipmap/ic_login</item>
    <item name="awsdkApplicationColorPrimary">@color/appLine</item>
  </style>
  <!-- Other style definitions here. -->
</resources>
```

Note the following:

- The Android schema tools have been added, in the resources tag. The tools enable override declarations in the rest of the configuration, to suppress warnings.
- The style tag with name “SDKBaseTheme” holds the items that are relevant to the SDK. The parent attribute must be set to “SDKVisionBaseTheme”.

See also the [Splash Screen](#) and [Login Screen](#) images in the appendix to this document. The images are annotated to show brand elements in the SDK user interface.

Static style configuration item tags

Item tags within the base theme with the following names are relevant to the SDK.

awsdkSplashBrandingIcon

Sets the image on the SDK splash screen, `ic_splash` in the `mipmap` resources in the above snippet.

awsdkLoginBrandingIcon

Sets the image on the SDK login screen, `ic_login` in the `mipmap` resources in the above snippet.

awsdkApplicationColorPrimary

Sets the color for certain user interface elements, for example:

- The progress bar on the splash screen.
- The background of the Next and Confirm navigations on the login screen.

In the above snippet, the color is set to the value of the color resource `appLine`. That value could be defined in the `colors.xml` file, for example.

This color will be overridden by the enterprise branding configuration, if specified.

Next steps

This completes static application branding implementation. Build and run the application to confirm that your brand is displayed.

Note that your application branding mightn't be applied to all screens in the enrolment and unlock interactions. This is true of screens whose Activity code is in the Hub application, such as the Single Sign-On login screen for example.

Consider whether to support branding override by the enterprise.

Enterprise Branding Considerations

Enterprise branding can override static application branding. This depends on the following factors.

- If the application doesn't support enterprise branding, then its static branding won't be overridden.
- If enterprise branding hasn't been configured in the UEM with which an application instance is enrolled, then static branding won't be overridden.

Enterprise branding configurations can be changed by UEM administrators at any time. Changes are retrieved and applied by the SDK at run time, without the need for an application upgrade.

If your application branding shouldn't be overridden:

- Don't add support for enterprise branding.

If support has already been added, then remove it. See [Support Enterprise Branding](#) for the code changes. In those instructions, either set the support flag to false instead of true, or you can remove the override because false is the default.

- Advise the appropriate system administrators, depending on your application type.

For a Customer Application, this could be your own IT department or helpdesk.

For other application types, this would be all the customer enterprises that deploy the application.

Application types are introduced in the [Use Cases](#) requirements analysis discussion.

Task: Set a Notification Icon

Setting a notification icon is an optional Workspace ONE platform integration task for Android application developers.

Notification icon setting is implemented in the application code, using Android resources and a method override. If an icon is set, the SDK will apply it as the small icon to notifications that it posts, for example in the device status bar. The SDK posts a notification when, for example, authentication is required.

If the application doesn't set a notification icon, the SDK applies a built-in Workspace ONE brand icon.

See also the [Notification Icon Screen Capture](#) in the appendix.

Add notification icon resource

First, add a suitable resource for a notification icon to your Android Studio project. If you don't have final brand resources, you can create placeholders using the tools that come with Android Studio.

If you are unfamiliar with Android notification icon requirements, these tips might help.

- Use a simple, single-color graphic, on a transparent background, as your notification icon.
- A typical representation is a small portable network graphics (PNG) format file. The file could be in the project's resources, in the `res drawable` directory, for example.

See the Android developer website for official guidance on notification design.

Register notification resource

Register the notification icon resource, as follows.

- Identify the class in which to register the icon, depending on framework initialization mechanism:
 - The Android Application subclass, if initialized by extension.
 - The AWApplication subclass, if initialized by delegation.

Either subclass could have been created as part of the Initialize Framework task in the Base Integration guide. See that guide for a discussion of the extension and delegation mechanisms.

- Override `getNotificationIcon` to be a method that returns the resource identifier of the icon graphic.

See the following code snippets for examples. Note that the same code applies to the extension and delegation mechanisms.

In Java, the override method could look like this:

```
@Override  
public int getNotificationIcon() { return R.drawable.brand_logo_onecolour; }
```

In Kotlin, the override method could look like this:

```
override fun getNotificationIcon(): Int { return R.drawable.brand_logo_onecolour }
```

Next Steps

This completes notification icon implementation.

Test the changes by causing the SDK to post a notification. How to do this depends on the UEM configuration. In some deployments, power cycling the mobile device will trigger a notification that the application requires authentication.

Task: Configure Dark Mode Selection

Configuring Android dark mode selection by the SDK is an optional Workspace ONE platform integration task for Android application developers. Dark mode is sometimes referred to as night mode.

The SDK user interface supports dark mode. Depending on the application configuration and device settings, the SDK may select to display its user interface in dark mode. Dark mode selection configuration is implemented in the application code, by a method override.

By default, if the application doesn't configure dark mode selection, the SDK user interface won't be displayed in dark mode.

For details of dark mode, see this page on the Android developer website: <https://developer.android.com/guide/topics/ui/look-and-feel/darktheme>

Determine required dark mode selection

First, determine what dark mode selection is required by your application.

Your application might support device dark mode selection, for example by applying one of the Android application compatibility **DayNight** themes to its user interface. In that case, the requirement would be to follow the system selection.

For other selections, see the Android developer website page mentioned above.

Override dark mode selection method

Override the dark mode selection method, as follows.

- Identify the class in which to configure dark mode selection by the SDK, depending on framework initialization mechanism:
 - The Android Application subclass, if initialized by extension.
 - The AWApplication subclass, if initialized by delegation.

Either subclass could have been created as part of the Initialize Framework task in the Base Integration guide. See that guide for a discussion of the extension and delegation mechanisms.

- Override **getNightMode** to be a method that returns the dark mode selection to be made by the SDK. The SDK supports the **MODE_NIGHT_** values documented on the Android developer website.

See the following code snippets for examples. Note that the same code applies to the extension and delegation mechanisms.

In Java, the override method could look like this:

```
@Override  
public int getNightMode() { return AppCompatActivity.MODE_NIGHT_FOLLOW_SYSTEM; }
```

In Kotlin, the override method could look like this:

```
override fun getNightMode(): Int { return AppCompatActivity.MODE_NIGHT_FOLLOW_SYSTEM }
```

Next Steps

This completes dark mode selection configuration.

Test the changes by making different dark mode selections in the device settings and checking that the SDK user interface display is as required.

Task: Support Enterprise Branding

Supporting enterprise branding is an optional Workspace ONE platform integration task for Android application developers.

Enterprise branding is configured in the management console. The configuration can include colors and images. Instructions for [how to configure enterprise branding](#) can be found in the appendix to this document, if needed.

If your application supports enterprise branding, the SDK will render the configured colors and images in its own user interface elements.

Set the enterprise branding support flag

You support enterprise branding by setting a flag that the SDK reads. Proceed as follows.

- Identify the class in which to set the flag, depending on framework initialization mechanism:
 - The Android Application subclass, if initialized by extension.
 - The AWApplication subclass, if initialized by delegation.

Either subclass could have been created as part of the Initialize Framework task in the Base Integration guide. See that guide for a discussion of the extension and delegation mechanisms.

- Override `isInputLogoBrandable` to be a method that always returns `true`.

See the following code snippets for examples. Note that the same code applies to the extension and delegation mechanisms.

In Java, the override method could look like this:

```
@Override
public boolean isInputLogoBrandable() { return true; }
```

In Kotlin, the override method could look like this:

```
override fun isInputLogoBrandable(): Boolean { return true }
```

Next steps

This completes support for enterprise branding.

Test the changes by installing the application on a device and enrolling with a UEM that has enterprise branding configured.

See the appendix to this document for:

- Instructions for [how to configure enterprise branding](#), if needed.

- Annotated [Splash Screen](#) and [Login Screen](#) images that show where configurable elements appear in the SDK user interface.
- Instructions for [how to reset application state](#), which could be used to force the SDK to replay some interactions in which brand resources appear.

Task: Implement Dynamic Branding

Implementing dynamic branding is an optional Workspace ONE platform integration task for Android application developers.

Dynamic branding is implemented as a programming interface from the application code. The SDK will call methods in the programming interface as needed to apply branding to its user interface. The dynamic branding programming interface can be written in Java or Kotlin.

To implement dynamic branding, you create an object that implements the `BrandingManager` interface, and then register it with the SDK. Your implementation can, depending on your branding requirements, make use of enterprise branding resources from the UEM.

Follow these instructions to create a skeleton dynamic branding manager that can be the starting point for your own implementation.

Create a branding manager object with access to enterprise branding

Add a class to your application that:

- Declares that it implements the interface:
`com.airwatch.login.branding.BrandingManager`
- Delegates implementation of all methods in the interface to a property of type:
`com.airwatch.login.branding.DefaultBrandingManager`

The `DefaultBrandingManager` constructor isn't documented here but examples of its instantiation are given below.

- Facilitates creation of an instance of the required property.
- Is a singleton class.

See the following code snippets for examples.

Java Branding Manager Class

In Java, the code could look like this:

```

class BrandingManager implements com.airwatch.login.branding.BrandingManager
{
    static DefaultBrandingManager createDefaultBrandingManager(
        android.app.Application application
    ) {
        return new DefaultBrandingManager(
            SDKContextManager.getSDKContext().getSDKConfiguration(),
            new SDKDataModelImpl(application.getApplicationContext()),
            application.getApplicationContext(),
            true
        );
    }

    private static BrandingManager instance = null;
    public static BrandingManager getInstance(android.app.Application application) {
        if (instance == null) {
            instance = new BrandingManager(createDefaultBrandingManager(application));
        }
        return instance;
    }
    public static BrandingManager getInstance(android.app.Activity activity) {
        return getInstance(application);
    }
    public static BrandingManager getInstance() { return instance; }

    private BrandingManager(DefaultBrandingManager defaultBrandingManager) {
        this.defaultBrandingManager = defaultBrandingManager;
    }

    private DefaultBrandingManager defaultBrandingManager;
    public DefaultBrandingManager getDefaultBrandingManager() {
        return this.defaultBrandingManager;
    }

    @Override
    public void applyBranding(android.app.Activity activity) {
        defaultBrandingManager.applyBranding(activity);
    }

    @Override
    public void applyBranding(AWInputField inputField) {
        defaultBrandingManager.applyBranding(inputField);
    }

    @Override
    public void brandLoadingScreenLogo(BrandingCallBack callback) {
        defaultBrandingManager.brandLoadingScreenLogo(callback);
    }

    @Override
    public void brandInputScreenLogo(BrandingCallBack callback) {
        defaultBrandingManager.brandInputScreenLogo((callback));
    }

    @Override
    public Integer getPrimaryColor() {
        return defaultBrandingManager.getPrimaryColor();
    }

    @Override
    public void applyBranding(AWNextActionView nextActionView) {
        defaultBrandingManager.applyBranding(nextActionView);
    }
}

```

Kotlin Branding Manager Class

In Kotlin, the code could look like this:

```
open class BrandingManager private constructor (
    val defaultBrandingManager: DefaultBrandingManager
) : com.airwatch.login.branding.BrandingManager by defaultBrandingManager
{
    companion object {
        // Helper function.
        fun createDefaultBrandingManager(
            application: android.app.Application
        ): DefaultBrandingManager
        {
            return DefaultBrandingManager(
                SDKContextManager.getSDKContext().sdkConfiguration,
                SDKDataModelImpl(application.applicationContext),
                application.applicationContext,
                true
            )
        }

        // Singleton business.
        private var instance: BrandingManager? = null
        fun getInstance(application: android.app.Application): BrandingManager {
            return instance ?:
                BrandingManager(createDefaultBrandingManager(application)).also {
                    instance = it
                }
        }
        fun getInstance(activity: android.app.Activity): BrandingManager {
            return getInstance(application)
        }
        fun getInstance(): BrandingManager? {
            return instance
        }
    }
}
```

Register the branding manager

Register your branding manager class from the previous instructions with the SDK as follows.

- Identify the class in which to register the branding manager, depending on framework initialization mechanism:
 - Android Application subclass, if initialized by extension.
 - AWApplication subclass, if initialized by delegation.
- Return the singleton instance of your branding manager from your override for the method:
getBrandingManager()

(Note: The enterprise branding support flag is ignored if a branding manager is registered. See [Support Enterprise Branding](#) for usage of the flag.)

See the following code snippets for examples. Note that the same code applies to the extension and delegation mechanisms.

Java:

```
@NotNull
@Override
public com.airwatch.login.branding.BrandingManager getBrandingManager() {
    return BrandingManager.getInstance(this);
}
```

Kotlin:

```
override fun getBrandingManager(): com.airwatch.login.branding.BrandingManager {
    return BrandingManager.getInstance(this)
}
```

Build and run the application after making these changes to check that no mistakes have been made.

Implement branding

You are now ready to implement your own dynamic branding. Override the following methods in your BrandingManager implementation.

brandLoadingScreenLogo

Provides the image that the SDK will show on the splash screen.

Your method will receive as parameters a callback object and required dimensions, width and height in pixels. The callback object will have an onComplete method that you call to provide your Bitmap.

There is also a method with the same name that receives only the callback object. The SDK will fall back to this method if your class doesn't implement the first method signature.

For example, as shown in these snippets.

Java code:

```
// Preferred, with dimensions.
@Override
public void brandLoadingScreenLogo(BrandingCallBack callback, int width, int height) {
    callback.onComplete( yourBitmapReturningFunction(width, height) );
}

// Fallback, without dimensions.
@Override
public void brandLoadingScreenLogo(BrandingCallBack callback) {
    callback.onComplete( yourBitmapReturningFunction() );
}
```

Kotlin code:

```
// Preferred, with dimensions.
override fun brandLoadingScreenLogo(callback: BrandingCallBack?, width: Int, height: Int) {
    callback?.onComplete( yourBitmapReturningFunction(width, height) )
}

// Fallback, without dimensions.
override fun brandLoadingScreenLogo(callback: BrandingCallBack?) {
    callback?.onComplete( yourBitmapReturningFunction() )
}
```

brandInputScreenLogo

Provides the image that the SDK will show on the login screen. The image is provided using the same callback mechanism as the previous method.

getPrimaryColor

Provides the color that the SDK will apply to certain user interface elements, for example, the progress bar on the splash screen.

Return an Android Color value. For example, as shown in these snippets.

Java code:

```
@Override
public Integer getPrimaryColor() { return Color.RED; }
```

Kotlin code:

```
override fun getPrimaryColor(): Int? { return Color.RED }
```

applyBranding

For example, to set the background color of the Next and Confirm navigations on the login screen.

Your method will receive as a parameter an object on which to call methods in order to apply branding. You can first pass the object to the default branding manager, to apply a default. For example, as shown in these snippets.

Java code:

```
@Override
public void applyBranding(AWNextActionView nextActionView) {
    // Apply default overall.
    defaultBrandingManager.applyBranding(nextActionView);

    // Apply a specific override.
    nextActionView.setBackgroundColor(Color.RED);
}
```

Kotlin code:

```
override fun applyBranding(nextActionView: AWNextActionView) {
    // Apply default overall.
    defaultBrandingManager.applyBranding(nextActionView)

    // Apply a specific override.
    nextActionView.setBackgroundColor(Color.RED)
}
```

This is an incomplete list but covers the main customizable brand resources.

Apply enterprise branding to the app user interface

Enterprise branding resources from the UEM can be applied to the user interface of your application. (The preceding section deals with the opposite case, customizing the SDK user interface.)

Access the image and color branding resources via an instance of: `DefaultBrandingManager`

The code snippets under [Java Branding Manager Class](#) and [Kotlin Branding Manager Class](#) show how `DefaultBrandingManager` can be instantiated.

`DefaultBrandingManager` implements the SDK `BrandingManager` interface and has the same methods listed in the preceding section.

One use of UEM resources could be to show the splash screen logo in an Activity in the application, for example. The following snippets illustrate how that could be coded, in the `onCreate` method.

The UEM resources can contain multiple branding images, of different sizes. `DefaultBrandingManager` will select the most suitable image resource based on the display characteristics of the device. Also, if a width and height are specified and the most suitable resource is too big, `DefaultBrandingManager` will scale it down to fit within the specified dimensions and preserve aspect ratio.

Java:

```
// With specified width and height.
BrandingManager.getInstance(this).getDefaultBrandingManager().brandLoadingScreenLogo( bitmap -> {
    ((ImageView)findViewById(R.id.imageViewEnterpriseLogo)).setImageBitmap(bitmap);
}, width, height);

// Without specified width and height.
BrandingManager.getInstance(this).getDefaultBrandingManager().brandLoadingScreenLogo( bitmap -> {
    ((ImageView)findViewById(R.id.imageViewEnterpriseLogo)).setImageBitmap(bitmap);
});
```

Kotlin:

```
// With specified width and height.
BrandingManager.getInstance(this).defaultBrandingManager.brandLoadingScreenLogo({
    findViewById<ImageView>(R.id.imageViewEnterpriseLogo).setImageBitmap(it)
}, width, height)

// Without specified width and height.
BrandingManager.getInstance(this).defaultBrandingManager.brandLoadingScreenLogo {
    findViewById<ImageView>(R.id.imageViewEnterpriseLogo).setImageBitmap(it)
}
```

Another use of UEM resources could be to apply the primary color to some user interface elements. The color can be accessed via the `getPrimaryColor` method. The method returns null if a primary color isn't configured in the UEM.

Next steps

This completes initial implementation of dynamic branding.

Test the changes by installing the application on a device, perhaps enrolling with a UEM that has enterprise branding configured if you made use of enterprise branding resources.

See the appendix to this document for:

- Instructions for [how to configure enterprise branding](#), if needed.
- Annotated [Splash Screen](#) and [Login Screen](#) images that show where configurable elements appear in the SDK user interface.
- Instructions for [how to reset application state](#), which could be used to force the SDK to replay some interactions in which brand resources appear.

Task: Configure Android 12 Splashscreen

Android 12, enables a new launch animation with system splashscreen using application launcher icon.

<https://developer.android.com/develop/ui/views/launch/splash-screen>

To replace Android 12 splashscreen icon, override splash logo attribute, in `res/values-v31/styles.xml`. Splashscreen icon should be vector drawable, and must be sized as per the adaptive icon [guideline](#) for a smoother transition from Android 12 splashscreen to sdk splashscreen.

This snippet illustrates the configuration:

```
<?xml version="1.0" encoding="utf-8"?>
<resources xmlns:tools="http://schemas.android.com/tools">
  <style tools:override="true" name="VisionTheme.System.SplashScreen"
    parent="VisionTheme.System.BaseSplashScreen">
    <item name="splashLogo">@drawable/ic_splash</item>
  </style>
  <!-- Other style definitions here. -->
</resources>
```

Above configuration is used to customize Android 12 splashscreen logo, and application should [Implement Static Application Branding](#) to setup static branding.

Appendix: How to configure enterprise branding in the management console

You can configure enterprise branding in the Workspace ONE management console by following these instructions. These are provided here for application developer convenience and aren't intended to replace the system administrator user guides for the Workspace ONE product.

For context of when these instructions would be followed, see [Support Enterprise Branding](#).

1. **Open the Workspace ONE management console in a web browser and log in.**

This opens the dashboard.

2. **Select an organization group.**

By default, the Global group is selected.

3. **Navigate to: Groups & Settings, All Settings, Apps, Settings and Policies, Settings.**

This opens a configuration screen, on which a number of settings can be switched on and off, and configured.

4. **For the Branding setting, select Enabled.**

When Enabled is selected, further controls will be displayed.

5. Use the controls to configure the enterprise branding.

For example:

- Upload images to all the Android Background Image slots. It is recommended to use small image files, no more than 100kb in size.

One of the images that you upload will appear on the SDK splash screen that is displayed when the application starts cold.

- Upload images to all the Android Company Logo Phone and Tablet slots. It is recommended to use small image files, no more than 100kb in size.

One of the images that you upload will appear on the SDK login screen that is displayed when, for example, the end user sets a passcode after registration.

- Set the Primary Color value.

The progress bar on the SDK splash screen will be the color that you set.

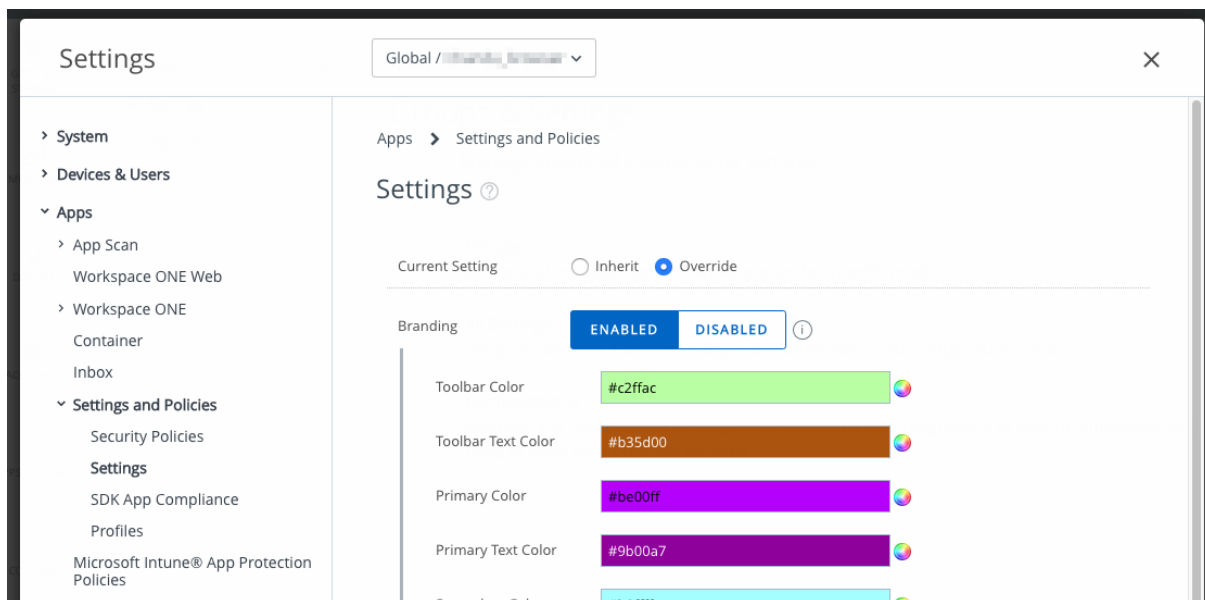
The background of, for example, the Next and Confirm navigation controls in the set passcode interaction will be the color that you set.

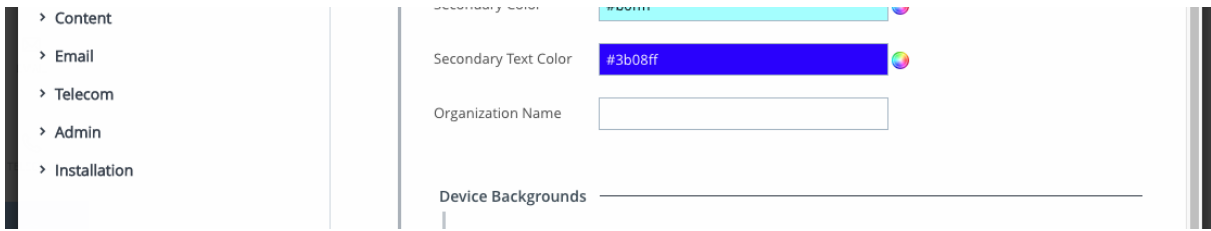
6. Select Save to commit your changes to the configuration.

See also the console user interface screen capture, below.

Console User Interface Screen Capture

The following screen capture shows configuration of enterprise brand colors in the management console. Configuration of brand images would be accessed by scrolling down in the same location.

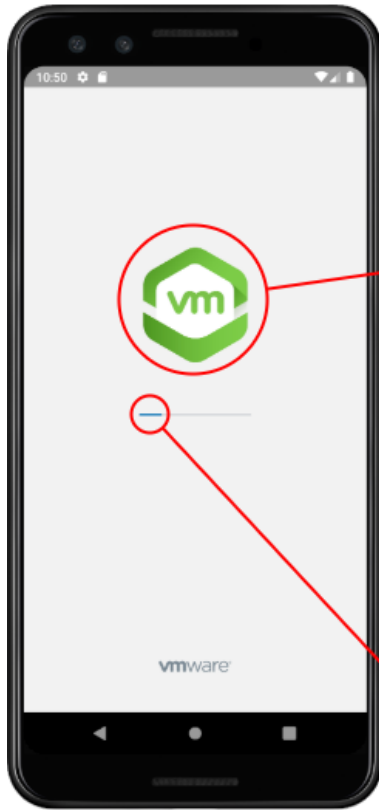




Screen capture 1: Console User Interface

Appendix: Branding elements on the splash screen

The following screen capture shows brand elements in the SDK splash screen.



Static Branding:

```
<style name="SDKBaseTheme">
```

...

```
<item name="awsdkSplashBrandingIcon">...</item>
```

...

```
</style>
```

Enterprise Branding: Background Image images

Dynamic Branding:

BrandingManager implementation

brandLoadingScreenLogo() method

Static Branding:

```
<style name="SDKBaseTheme">
```

...

```
<item name="awsdkApplicationColorPrimary">...</item>
```

...

```
</style>
```

Enterprise Branding: Primary Color

Dynamic Branding:

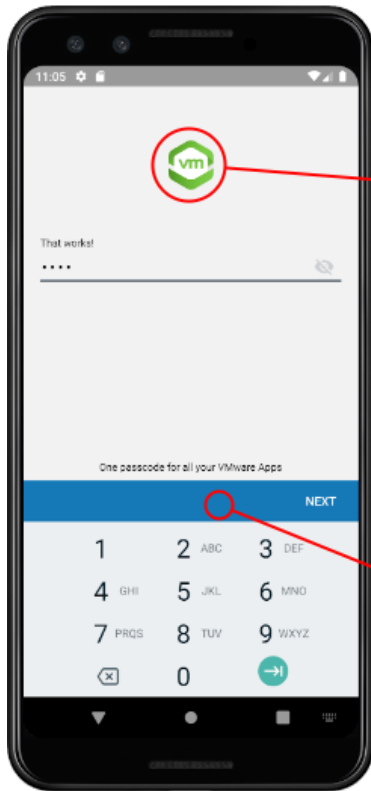
BrandingManager implementation

getPrimaryColor() method

Screen capture 2: Splash screen in the mobile SDK

Appendix: Branding elements on the login screen

The following screen capture shows brand elements in the SDK login screen.



Static Branding:

```
<style name="SDKBaseTheme">
```

```
...
```

```
<item name="awsdkLoginBrandingIcon">...</item>
```

```
...
```

```
</style>
```

Enterprise Branding: Company Logo images

Dynamic Branding:

BrandingManager implementation

brandInputScreenLogo() method

Static Branding:

```
<style name="SDKBaseTheme">
```

```
...
```

```
<item name="awsdkApplicationColorPrimary">...</item>
```

```
...
```

```
</style>
```

Enterprise Branding: Primary Color

Dynamic Branding:

BrandingManager implementation

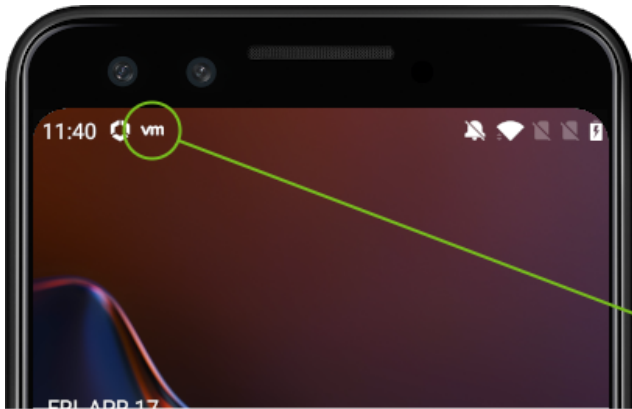
applyBranding(nextActionView: AWNextActionView) method

nextActionView.setBackgroundColor() call

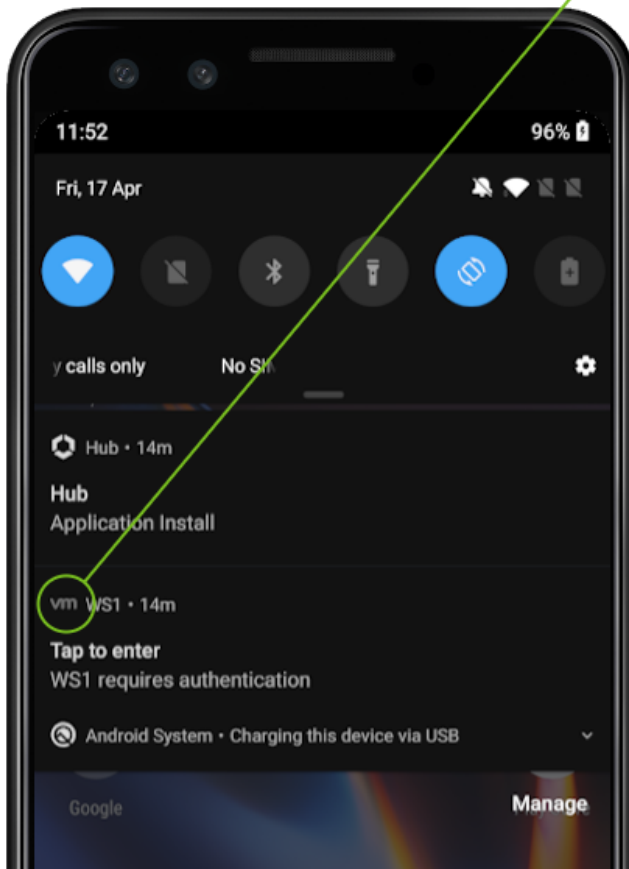
Screen capture 3: Login screen in the mobile SDK

Appendix: Notification Icon

The following screen captures show the notification icon that can be branded.



AWApplication subclass or
AWSDKApplication implementation:
getNotificationIcon() method



Screen captures 4 and 5: Notification icon in bar and open

Appendix: How to reset application state

You can reset an application to its just-installed state by following these instructions. Some SDK user interactions only take place once per installation. In case you are testing the appearance of a branding resource in one of those interactions, resetting the application might force the SDK to show that interaction.

1. **Open the App Info screen for the application whose data you want to reset.**

For example, do one of the following.

- From the device home screen, long press the application icon and then select App info in the context menu that appears.
- Open the device Settings and search for the application by its long name. (The long name isn't necessarily the same as the package identifier.)
- Open the device Settings and navigate to Apps and notifications, then select the application from the recent list, or from the all list.

2. **Select Storage & cache.**

This opens the Storage management screen for the application.

3. **Select to Clear Storage, and confirm this if prompted.**

All application data has now been deleted and the SDK instance will have been reset to the just-installed state.

Appendix: How to add a color resource to an Android application

You can configure color resources in Android Studio by following these instructions. These are provided here for convenience; for definitive information, see the Android developer website.

1. Open your project in Android Studio.
2. Under the application module, expand **res, values**, and then open the **colors.xml** file.
3. Add a new **<color>** item inside the **<resources>**.
4. Set the **name** attribute, which you will need later.
5. Enter an initial hexadecimal value inside the item tags. For example:

```
<color name="appLine">#000000</color>
```

6. Click the coloured square that appears in the left margin of the editor, next to the line number.

This opens a color picker control, populated with the current color.

7. Click or enter a color in the picker and it will overwrite the value in the tag.
8. Close the picker by clicking anywhere outside it in the editor.

Save the file and the color will have been added to the application resources.

Document Information

Published Locations

This document is available

- in Markdown format, in the repository that also holds the sample code:
<https://github.com/vmware-samples/...Branding.md>
- in Portable Document Format (PDF), on the VMware website:
<https://developer.vmware.com/...Branding.pdf>

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04Nov2022	Updated for 22.10 SDK for Android.
13Dec2022	Updated for 22.11 SDK for Android.
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15Mar2023	Updated for 23.03 SDK for Android.
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