



EMV® Specification Bulletin No. 225
September 2021

EMV 3-D Secure SDK—Device Information Data Version 1.5

This Specification Bulletin No. 225 provides updates, clarifications and errata incorporated into 3-D Secure—Device Information Data Version 1.5.

Applicability

This Specification Bulletin applies to:

- *EMV 3-D Secure—Device Information Data Version 1.5*

Updates are provided in the order in which they appear in the specification. Deleted text is identified using strikethrough, and red font is used to identify changed text. Unedited text is provided only for context.

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Chapter 1 Introduction

1.5 Data Version Number

Refer to *EMV® Specification Bulletin 255—3-D Secure Protocol Version Numbers* for the Data Version Number status for the 3-D Secure protocol version.

Table 1.2 Data Version Numbers

Chapter 2 Device Information Parameters

The 3DS SDK shall collect and provide to the 3DS Server either the:

- The Common parameters (See Section 2.4) and one set of the Device Platform specific parameters (See Section 2.5 for Android, 2.6 for iOS, Section 2.7 for Windows OR
- The Platform Provider-specific parameters See Section 2.8).

All parameters shall be encoded as String or Array of String.

~~Note: The 3DS SDK shall collect and pass the common parameters. This is the minimum requirement. In addition, the implementer shall ensure that the 3DS SDK collects as many device platform specific parameters as possible. The availability of a higher number of device parameters improves the effectiveness of risk-based decision making by the ACS. This, in turn, increases the probability of applying a frictionless flow.~~

2.1 Data Version

The device identification parameters that are described in this document constitute Data Version 1.5.

2.2 Minimum Supported Platform Versions

Table 2.1 Minimum Supported Platform Versions

Platform	Minimum Version
Android	Android 5.8 (API version 24/26)
iOS	10.12



2.4 Common Device Identification Parameters Available in All Platforms

Table 2.2 Common Parameters Available in Android, iOS and Windows 10 Platforms

Identifier	Parameter	Description	Permissions
C002		<p>Mobile device manufacturer and model.</p> <ul style="list-style-type: none">• Android: Build.MANUFACTURER + “ “ + Build.MODEL returns the mobile device manufacturer and model, For example, “samsung SM-G960U1”,• iOS: utsname.machine returns the device model., For example, “iPhone10,4 “. Note: “Apple” as a manufacturer is not included because it is the same for all iOS devices.	
C003		<p>Operating system name.</p> <ul style="list-style-type: none">• Android: “Android” + “ “ + (Build.Version.SDK_INT equivalent field name from Build.Version.VERSION_CODES) + “ “ + Build.Version.RELEASE + “ API “ + Build.Version.SDK_INT returns, for example, the following format: “Android Q 10 API 29”.• iOS: the systemName property of the UIDevice class returns the name of the operating system, for example, “iOS”.	
C004		<p>Operating system version.</p> <ul style="list-style-type: none">• Android: Build.VERSION.RELEASE returns the version of the operation system, for example, “8.1.0”.• iOS: the systemVersion property of the UIDevice class returns the version of the operating system, for example,. “14.2”.	

Identifier	Parameter	Description	Permissions
C005		<p>Device locale set by the user.</p> <ul style="list-style-type: none"> • Android: the device <code>locale.Language() + "-" + locale.getCountry()</code> returns, for example, the following format: "en-US". the country/region code for this locale, and the <code>getLanguage</code> returns the language code of this Locale • iOS: the device <code>currentLocale.languageCode + "-" + currentLocale.countryCode</code> returns, for example, the following format: "en-US". 	
C006		<p>Time-zone offset in minutes between UTC and the device local time</p> <p>Example time zone offset values in minutes:</p> <p>If UTC -5 hours:</p> <ul style="list-style-type: none"> • "300" • "+300" <p>If UTC +5 hours:</p> <ul style="list-style-type: none"> • "-300" 	
C007	Advertising ID	<p>Unique ID available for advertising and fraud detection purposes.</p> <p>For example, in Android, this ID can be retrieved using the advertising ID APIs available in the <code>com.google.android.gms.ads.identifier</code> package in the Google Play Services library.</p> <p>Advertising ID should be in the DPNA when equals to zero with RE = 04 (null or blank), or with RE = 01 in case of access or use restrictions.</p> <p>In iOS, the ID can be obtained using the <code>advertisingIdentifier</code> of the <code>ASIdentifierManager</code> shared instance.</p>	No permissions required but privacy policy requirements may exist
C008		<ul style="list-style-type: none"> • iOS: screen resolution can be obtained from the <code>UIScreen</code> mainscreen bounds width and height. 	

Identifier	Parameter	Description	Permissions
C009		<ul style="list-style-type: none"> Android: default Bluetooth adapter device name can be used. 	
C010		local IP address of device the SDK in IPv4 or IPv6 format.	
C013		<p>The unique package name/bundle identifier of the application in which the 3DS SDK is embedded.</p> <ul style="list-style-type: none"> Android: obtained from the <code>applicationContext.getPackageName()</code> method. iOS: obtained from the <code>[NSBundle mainBundle] bundleIdentifier</code> property. 	
C016	SDK Ref Number	<p>Identifies the vendor and version of the 3DS SDK that is utilised for a specific transaction. The value is assigned by EMVCo when the Letter of Approval (LoA) of the specific 3DS SDK is issued.</p> <p>The ACS should verify that this value matches the SDK Reference Number present in the AReq message.</p>	No permissions required.

2.5 Android-specific Device Parameters

Table 2.3 Android-specific Parameters

Group or Identifier	Element	Description	Comments	Permissions
Telephony Manager				
A001			<p>API level 29 or higher throws <code>SecurityException</code> or returns null. Set to RE04.</p>	
A002			<p>API level 29 or higher, throws <code>SecurityException</code> or returns null. Set to RE04.</p>	



Group or Identifier	Element	Description	Comments	Permissions
A006 <i>through</i> A016				No permissions required Run-time permissions
A011			Use getDataNetworkType() only for API 24 or higher.	
A012			getPhoneCount() deprecated in API 30, Use getActiveModemCount() for API 30 and above	
A017			API level 29 or higher, throws SecurityException or returns null. Set to RE04.	
A018				No permissions required Run-time permissions
A021 <i>through</i> A027				No permissions required Run-time permissions
A138	simCarrierId	Provides a platform-wide unique identifier for each carrier.	Available only for API 28 or higher	No permissions required
A139	simCarrierIdName	Provides user-facing name of the specific carrier id	Available only for API 28 or higher	No permissions required
A140	manufacturerCode	Provides the Manufacturer code from the Mobile Equipment Identifier	Available only for API 28 or higher	No permissions required
A141	simSpecificCarrierId	Provides carrier ID of the current subscription	Available only for API 29 or higher	No permissions required

Group or Identifier	Element	Description	Comments	Permissions
A142	simSpecificCarrierIdName	Provides the user-facing name of the specific carrier ID	Available only for API 29 or higher	No permissions required
A143	multiSimSupported	Returns if the ability to register multiple SIM cards simultaneously on the network is supported by the device and by the carrier.	Available only for API 29 or higher	No permissions required
A144	networkCountryIso	Returns the ISO-3166-1 alpha-2 country code equivalent of the Mobile Country Code (MCC) of the current registered operator.	Available only for API 30 or higher	No permissions required
A145	subscriptionId	Returns the subscription ID for the given phone account.	Available only for API 30 or higher	No permissions required
WiFiManager				
A033			Deprecated in API level 29, use PackageManager.hasSystemFeature() with PackageManager.FEATURE_WIFI_RTT	
A037			Deprecated in API level 29, ability for apps to trigger scan requests will be removed in a future Android release.	
A146	is6GHzBandSupported	Returns a Boolean (coded as a string "0" or "1") if 6GHz band is supported.	Available only for API 30 or higher	Run time permission required
A147	passpointFqdn	Returns the Fully Qualified Domain Name of the network if it is a Passpoint network	Available only for API 29 or higher	Run time permission required

Group or Identifier	Element	Description	Comments	Permissions
A148	passpointProvideFriendlyName	Returns the Provider Friendly Name of the network if it is a Passpoint network.	Available only for API 29 or higher	Run time permission required
Bluetooth Manager				
A040	BondedDeviceMac	Returns the array of BluetoothDevice objects MAC address coded as string that are bonded (paired) to the local adapter. For example :["48:F0:7B:61:DD:D4", "ED:90:C2:3D:E8:14"]		
A149	BondedDevicesAliases	Returns the array of BluetoothDevice alias coded as string that are bonded (paired) to the local adapter.	API level 30 or higher	Installation-time permissions
Build				
A053			API level 29 or higher, throws SecurityException or returns null. Set to RE04.	
Settings Secure				

Group or Identifier	Element	Description	Comments	Permissions
A076		Encoded as either “false” or “true”	Settings.Security. INSTALL_NON_MARKET_APPS constant deprecated in API level 26. ACTION_INSTALL_PACKAGE mechanism deprecated in API level 29. PackageManager.canRequestPackageInstalls() to be used instead from API level 29 onwards.	
A150	RTT_CALLING_MODE	User selected Real Time Text (RTT) mode. Boolean coded as a string “0” or “1”.	Available only for API 28 or higher	No permissions required
A151	SECURE_FRP_MODE	Indicates whether the device is under restricted secure Factory Reset Protection (FRP) mode. Boolean coded as a string “0” or “1”.	Available only for API 30 or higher	No permissions required
Settings Global				
A152	APPLY_RAMPING_RINGER	Returns if ramping ringer is enabled on incoming call ringtone. Boolean coded as a string “0” or “1”.	Available only for API 29 or higher.	No permissions required
Package Manager				
A125		Returns an array of non-system application packages that are installed on the device.	Include only packages that do not have ApplicationInfo.FLAG_SYSTEM set.	

Group or Identifier	Element	Description	Comments	Permissions
A126			<p>Indirectly, this field can be used to determine whether the application has been installed from a trusted source.</p> <p>Deprecated in API level 30</p> <p>Starting API level 30, use <code>getInstallSourceInfo().getInstallingPackageName()</code></p>	
Webview		Information about the WebView component utilized by the SDK for App-based HTML flow.		No permissions required.
A137	<code>webViewUserAgent</code>	<p>The default user agent of the WebView component during App-based HTML flow.</p> <pre>String defaultUserAgent = android.webkit.WebSettings.getDefaultUserAgent(context);</pre>		No permissions required.

2.6 iOS-specific Device Parameters

Table 2.4 iOS-specific Parameters

Group or Identifier	Attribute	Description
UIDevice		
I002		<p>Accepted values:</p> <ul style="list-style-type: none"> • Unspecified • iPhone • TV • carPlay • iPad • Mac

Group or Identifier	Attribute	Description
UIFont		
I004		Returns an array of font names for all the font families listed in I003 available in a particular font family using the system font family.
I006		Floating point number represented as a string, For example, '10.5'
I007		Floating point number represented as a string. For example, '18'
NSLocale		
I010		Formatted as the device locale language + “-” + device locale country. For example, “en-US”.
I011		Returns an array of NSString objects as provided by the OS method , each of which identifies a locale available on the system
I012		Returns the user's language preference order as an array of strings as provided by the OS method .
NSTimeZone		
I013		Returns the time-zone offset in minutes between UTC and default time zone for the current application. Example time zone offset values in minutes: If UTC -5 hours: <ul style="list-style-type: none">• “300”• “+300” If UTC +5 hours: <ul style="list-style-type: none">• “-300”
NSBundle		
I014		The file URL for the main application bundle's App Store receipt. [[NSBundle mainBundle] appStoreReceiptURL] https://developer.apple.com/documentation/foundation/nsbundle/1407276-appstorereceipturl This bundle property can be used to locate the receipt for an application purchased from the Apple App store.

Group or Identifier	Attribute	Description
		Indirectly, this property can be used to identify whether the App has been installed from the Apple App store.
I015	appStoreReceiptExists Encoded as either "false" or "true"	Indicates whether the receipt file residing in the appStoreReceiptURL path exists and is non-empty. Indirectly, this field can be used to determine whether the application has been purchased from the Apple App store.

2.8 Platform Provider-specific Parameters

Table 2.6 Platform Provider-specific Parameters

Group or Identifier	Parameter	Description	PermissionsComments
D001		Platform that the device is using, as a string..	Not applicable
D002		Platform-defined device model, as a string.	No permissions required
D003		Platform defined OS name, as a string	No permissions required
D005		Device locale set by the user, as a string.. The Device Locale as set by the user, is made of the device Language Code + “-“ + current Country Code, for example, the following format: “en-US”.	No permissions required
D006		Time-zone offset in minutes between UTC and the device local time Example time zone offset values in minutes: <ul style="list-style-type: none">• If UTC -5 hours:• “300”• “+300” If UTC +5 hours: <ul style="list-style-type: none">• “-300”	No permissions required

Group or Identifier	Parameter	Description	Permissions Comments
D008		Pixel width and pixel height, as a string i.e., “1080x1920”.	No permissions required
D021	DeviceId	<p>For example:</p> <ul style="list-style-type: none"> • Hardware Device ID • Platform calculated device fingerprint 	Not applicable
D022	DeviceType	<p>Constant that indicates the device type.</p> <p>Valid Values:</p> <ul style="list-style-type: none"> • 01 = Desktop • 02 = TV connected • 03 = Tablet/Mobile • 04 = Headless/Voice • 05 = Wearable • 06 = IoT • 99 = Other 	Not applicable
D013	Application Package Name	<p>The unique package name/bundle identifier of the application in which the 3DS SDK is embedded.</p> <p>Specific values in case the SDK is embedded on an Android or iOS device:</p> <ul style="list-style-type: none"> • In Android, this is obtained from the applicationContext.getPackageName() method. • In iOS, this can be obtained from the [NSBundle mainBundle] bundleIdentifier property. 	No permissions required.
D015	SDK Version	3DS SDK version as applied by the implementer and stored securely in the SDK (refer to Req 58 in the <i>EMV® 3DS SDK Specification</i>).	No permissions required

Group or Identifier	Parameter	Description	PermissionsComments
D016	SDKRef Number	<p>Identifies the vendor and version of the 3DS SDK that is utilised for a specific transaction. The value is assigned by EMVCo when the Letter of Approval (LoA) of the specific 3DS SDK is issued and is provided as a string.</p> <p>The ACS should verify that this value matches the SDK Reference Number present in the AReq message.</p>	No permissions required
D017	Challenge Window Size	Challenge window width and height in pixels, as a string i.e., "500x600"	
D021	DeviceId	<p>Unique and immutable identifier linked to a device that is consistent across 3DS transactions for the specific user device.</p> <p>For example:</p> <ul style="list-style-type: none"> • Hardware Device ID • Platform calculated device fingerprint 	
D022	DeviceType	<p>Constant that indicates the device type.</p> <p>Valid Values:</p> <ul style="list-style-type: none"> • 01 = Desktop • 02 = TV connected • 03 = Tablet/Mobile • 04 = Headless/Voice • 05 = Wearable • 06 = IOT • 99 = Other 	
D023		List of cardholder input methods enabled on the device as an array of strings, i.e., ["01", "02"]	Not applicable
D024		List of output methods enabled on the device as an array of strings:	Not applicable

Group or Identifier	Parameter	Description	Permissions	Comments
D025		Preferred network and issuer logo colour preference provided as a string	No permissions required	
D026		This identifier is a unique immutable hash of the users account identifier for the given platform, provided as a string . Note: The UserID may change if the User resets the device.	No permissions required but privacy policy requirements may exist	
D027		Gets the set of languages preferred by the user, in the order of preference as an array of strings as defined in IETF BCP47 .	No permissions required	
D028		Provided as a string	Not applicable	
D029	IP-Address	External IP address of the device as collected by the SDK in IPv4 or IPv6 format, provided as string.		
D030	Browser-Accept Headers	Exact content of the HTTP Accept Headers as sent to the 3DS Requestor from the Cardholder's browser, provided as string.	Browser-SDK only.	
D031	Browser-User-Agent	Exact content of the HTTP User-Agent header, provided as string.		
D032	Device-ID-Type	Information about the Device ID: <ul style="list-style-type: none"> • 01 = Hardware based identifier • 02 = Hardware fingerprint identifier • 03 = Key based software identifier • 04 = Software fingerprint identifier Provided as a string, for example: "03"		

Group or Identifier	Parameter	Description	PermissionsComments
D033	OriginatingDeviceIDType	<p>Information about the Device ID:</p> <p>Valid values:</p> <ul style="list-style-type: none"> • 01 = Hardware based identifier • 02 = Hardware fingerprint identifier • 03 = Key based software identifier • 04 = Software fingerprint identifier <p>Provided as a string, for example: "03"</p>	

2.10 Device Information JSON Data

The values listed in Table 2.7 shall only be present in the DPNA data object.

The values (SWxx) listed in *EMV 3-D Secure SDK Specification* shall only be present in the SW data object.

Table 2.8 Device Parameters JSON Structure

Platform	Device Information
Android	<pre>{"DV": "1.5", "DD": {"C001": "Android", "C002": "HTC One_M8", "C004": "5.0.1", "C005": "en-US", "C006": "Eastern Standard Time-300", "C007": "06797903-fb61-41cd-94c2-4d2b74e27d18", "C009": "John's Android Device", . . .}, "DPNA": {"C010": "RE01", "C011": "RE03"}, "SW": ["SW01", "SW04"] }</pre>
iOS	<pre>{"DV": "1.50", "DD": {"C001": "iOS", "C002": "iPhone 5e6_1", "C003": " iPhone OS ", "C004": "9.2", "C005": "en-US", "C006": "GMT-6+360", "C009": "John's iPhone", . . .}, "DPNA": {"C010": "RE01", "C011": "RE03"}, "SW": ["SW01", "SW04"] }</pre>
Windows 10	<pre>{"DV": "1.50", "DD": {"C001": "Windows", "C002": "NOKIA RM-984_1006", "C003": "WindowPhone", "C004": "10.0.10586.11", "C005": "en-US", "C006": "(UTC-06:00) Central Time (US & Canada)+120", "C007": "1bbd95da4520a6dfe7b94480d69f3ebb", "C008": "1280x720", "C009": "My Phone", . . .}, "DPNA": {"C010": "RE02", "C011": "RE03"}, "SW": ["SW01", "SW04"] }</pre>



Platform	Device Information
Platform Provider specific	{"DV": "1.5", "DD": {"D001": "Android", "D002": "Personal device", "D003": "aPhone", "D004": "13.0.186.11", "D005": "fr-FR", "D006": "60", "D008": "2340x1080", "D009": "My Phone", ...}, "DPNA": {"D028": "RE02", "D031": "RE03"}, "SW": ["SW01", "SW04"]}



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