



EMV[®]

3-D Secure

Device Acknowledgement Message Extension

Version 3.0

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Introduction

This document provides the EMV® 3-D Secure Device Acknowledgement Message Extension v3.0 and describes, in the context of the *EMV 3-D Secure Protocol and Core Functions Specification v2.1.0* and *v2.2.0*, how:

- the 3DS Server that interfaces with a Split-SDK can provide the Split-SDK-related data to the ACS for use in risk-decisioning
- the ACS can acknowledge data received in 3-D Secure Device Information, particularly for Device Information Data Version 1.3 or higher.

The Device Acknowledgement Message Extension is only present in the AReq message version 2.1.0 or 2.2.0 when the 3DS Requestor uses a Split-SDK for the App flow.

The Device Acknowledgement Message Extension is only present in the ARes message version 2.1.0 or 2.2.0 if the ACS:

- acknowledges the supported Device Information, AND/OR
- provides additional data to the Split-SDK in the case of a challenge (Transaction Status = C)

Supporting Documentation

The following documents are specific to the EMV 3-D Secure protocol and should be used in conjunction with this specification. These documents, as well as the *EMV® 3-D Secure Frequently Asked Questions*, are located on the EMVCo website.

- *EMV® 3-D Secure—Protocol and Core Functions Specification v2.3.1.0*
- *EMV® 3-D Secure—Split-SDK Specification v2.3.1.0*
- *EMV® Specification Bulletin No. 255—EMV® 3-D Secure Specification Version Configuration*

Device Acknowledgement Message Extension Data Elements

Table 1: Device Acknowledgement Message Extension Data Elements

Data Element/Field Name	Description	Source	Length/Format/Values	Inclusion
Assigned Extension Group Identifier Field Name: <code>id</code>	A unique identifier for the extension.	3DS Server ACS	Length: 14 characters JSON Data Type: String Value accepted: <ul style="list-style-type: none">A000000802-001	AReq = R ARes = R
Criticality Indicator Field Name: <code>criticalityIndicator</code>	A Boolean value indicating whether the recipient must understand the contents of the extension to interpret the entire message.	3DS Server ACS	JSON Data Type: Boolean Value accepted: <ul style="list-style-type: none">false	AReq = R ARes = R
Data Field Name: <code>data</code>	The data carried in the extension.	3DS Server ACS	Length: Variable, maximum 8059 characters JSON Data Type: Object Values accepted: <ul style="list-style-type: none">Refer to Table 2 for data elements	AReq = R ARes = R
Extension Name Field Name: <code>name</code>	The name of the extension data set as defined by the extension owner.	3DS Server ACS	Length: 19 characters JSON Data Type: String Value accepted: <ul style="list-style-type: none">Dev Ack - Split-SDK	AReq = R ARes = R

Table 2: Data

Data Element/Field Name	Description	Source	Length/Format/Values	Inclusion
Extension Version Number Field Name: <code>version</code>	Version number of the message extension.	3DS Server ACS	Length: 3 characters JSON Data Type: String Value accepted: <ul style="list-style-type: none"> 3.0 	AReq = R ARes = R
Default-SDK Type Field Name: <code>defaultSdkType</code>	Indicates the characteristics of a Default-SDK. SDK Variant: SDK implementation characteristics Wrapped Indicator: If the Default-SDK is embedded as a wrapped component in the 3DS Requestor App Example: <pre>"defaultSdkType": { "sdkVariant": "01", "wrappedInd": "Y" }</pre>	3DS Server	JSON Data Type: Object <code>sdkVariant</code> Length: 2 characters JSON Data Type: String Values accepted: <ul style="list-style-type: none"> 01 = Native 02–79 = Reserved for EMVCo future use (values invalid until defined by EMVCo) 80–99 = Reserved for DS use <code>wrappedInd</code> Length: 1 character JSON Data Type: String Value accepted: <ul style="list-style-type: none"> Y = Wrapped Only present if value = Y	Required if SDK Type = 01

Data Element/Field Name	Description	Source	Length/Format/Values	Inclusion
SDK Authentication Type Field Name: sdkAuthenticationType	Authentication methods preferred/supported by the 3DS SDK in order of preference.	3DS SDK	Size: 1–99 elements JSON Data Type: Array of String String: 2 characters Values accepted: <ul style="list-style-type: none">• 01 = Static Passcode• 02 = SMS OTP• 03 = Key fob or EMV card reader OTP• 04 = App OTP• 05 = OTP Other• 06 = KBA• 07 = OOB Biometrics• 08 = OOB Login• 09 = OOB Other• 10 = Other• 11 = Push Confirmation• 12–79 = Reserved for EMVCo future use (values invalid until defined by EMVCo)• 80–99 = Reserved for DS use	Required if SDK Type = 02

Data Element/Field Name	Description	Source	Length/Format/Values	Inclusion
SDK Server Signed Content Field Name: <code>sdkServerSignedContent</code>	Contains the JWS object (represented as a string) created by the Split-SDK Server for the AReq message.	3DS SDK	Length: Variable JSON Data Type: String Values accepted: <ul style="list-style-type: none"> The body of the JWS object (represented as a string) will contain the following data elements as defined in Table A.1: <ul style="list-style-type: none"> SDK Reference Number SDK Signature Timestamp SDK Transaction ID Split-SDK Server ID 	Conditional based on DS rules. Only present if SDK Type = 02
SDK Signature Timestamp Field Name: <code>sdkSignatureTimestamp</code>	Date and time indicating when the 3DS SDK generated the Split-SDK Server Signed Content converted into UTC.	3DS SDK	Length: 14 characters JSON Data Type: String Date format accepted: <ul style="list-style-type: none"> YYYYMMDDHHMMSS 	See SDK Server Signed Content
SDK Type Field Name: <code>sdkType</code>	Indicates the type of 3DS SDK. This data element provides additional information to the DS and ACS to determine the best approach for handling the transaction.	3DS Server	Length: 2 characters JSON Data Type: String Values accepted: <ul style="list-style-type: none"> 01 = Default-SDK 02 = Split-SDK 03–79 = Reserved for EMVCo future use (values invalid until defined by EMVCo) 80–99 = Reserved for DS use 	

Data Element/Field Name	Description	Source	Length/Format/Values	Inclusion
Split-SDK Type Field Name: <code>splitSdkType</code>	<p>Indicates the characteristics of a Split-SDK.</p> <p>Split-SDK Variant: Implementation characteristics of the Split-SDK client</p> <p>Limited Split-SDK Indicator: If the Split-SDK client has limited capabilities</p> <p>Example:</p> <pre>"splitSdkType": { "sdkVariant": "01", "limitedInd": "Y" }</pre>	3DS Server	<p>Length: Variable</p> <p>JSON Data Type: Object</p> <p><code>sdkVariant</code></p> <p>Length: 2 characters</p> <p>JSON Data Type: String</p> <p>Values accepted:</p> <ul style="list-style-type: none"> 01 = Native Client 02 = Browser 03 = Shell 04–79 = Reserved for EMVCo future use (values invalid until defined by EMVCo) 80–99 = Reserved for DS use <p><code>limitedInd</code></p> <p>Length: 1 character</p> <p>JSON Data Type: String</p> <p>Value accepted:</p> <ul style="list-style-type: none"> Y = Limited <p>Only present if value = Y</p>	Required if SDK Type is present and = 02
Split-SDK Server ID Field Name: <code>splitSdkServerID</code>	<p>DS-assigned Split-SDK Server identifier.</p> <p>Each DS can provide a unique ID to each Split-SDK Server on an individual basis.</p>	Split-SDK Server	<p>Length: Variable, maximum 32 characters</p> <p>JSON Data Type: String</p> <p>Value accepted:</p> <ul style="list-style-type: none"> Any individual DS may impose specific formatting and character requirements on the contents of this field. 	See SDK Server Signed Content

<p>Authentication Method</p> <p>Field Name: authenticationMethod</p>	<p>Indicates the authentication types that the Issuer will use to challenge the Cardholder when in the ARes message or what was used by the ACS when in the RReq message.</p>	<p>ACS</p>	<p>Size: Variable, 1–99</p> <p>JSON Data Type: Array of String</p> <p>String: 2 characters</p> <p>Values accepted:</p> <ul style="list-style-type: none"> • 01 = Static Passcode • 02 = SMS OTP • 03 = Key fob or EMV card reader OTP • 04 = App OTP • 05 = OTP Other • 06 = KBA • 07 = OOB Biometrics • 08 = OOB Login • 09 = OOB Other • 10 = Other • 11 = Push Confirmation • 12 = Decoupled • 13 = WebAuthn • 14 = SPC • 15 = Behavioural biometrics • 16–79 = Reserved for future EMVCo use (values invalid until defined by EMVCo) • 80–99 = Reserved for DS use <p>If SDK Type = 02 and Split-SDK Type/Limited Indicator = Y, a value of 01 or 06 is not valid.</p>	<ul style="list-style-type: none"> • Required in the ARes message if Transaction Status = C or D. • Required in the RReq message if Transaction Status = Y or N.
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Data Element/Field Name	Description	Source	Length/Format/Values	Inclusion
Device Information Recognised Version Field Name: deviceInfoRecognisedVersion	Indicates the highest Data Version of the Device Information supported by the ACS.	ACS	Length: 3 characters JSON Data Type: String Value accepted: <ul style="list-style-type: none"> Any active Device Information Data Version as defined in Table 2 of the <i>EMV® Specification Bulletin No. 255—EMV® 3-D Secure Specification Version Configuration</i>. Example: <ul style="list-style-type: none"> 1.4 	ARes = R
Device User Interface Mode Field Name: deviceUserInterfaceMode	Indicates the user interface mode that the ACS will present to the Cardholder for a challenge.	ACS	Length: 2 numeric characters JSON Data Type: String Values accepted: <ul style="list-style-type: none"> 01 = Portrait 02 = Landscape 03 = Voice 04 = Other 	ARes = C Required if Transaction Status = C and if Data Version is greater than or equal to 1.3.

Message Format

Table 3: AReq Message Extension Data Elements

Data Element	Field Name
Assigned Extension Group Identifier	id
Criticality Indicator	criticalityIndicator
Data	data
Extension Name	name
Extension Version Number	version
Default-SDK Type	defaultSdkType
SDK Authentication Type	sdkAuthenticationType
SDK Server Signed Content	sdkServerSignedContent
SDK Signature Timestamp	sdkSignatureTimestamp
SDK Type	sdkType
Split-SDK Server ID	splitSdkServerID
Split-SDK Type	splitSdkType

Table 4: ARes Message Extension Data Elements

Data Element	Field Name
Assigned Extension Group Identifier	id
Authentication Method	authenticationMethod
Criticality Indicator	criticalityIndicator
Data	data
Device Information Recognised Version	deviceInfoRecognisedVersion
Device User Interface Mode	deviceUserInterfaceMode
Extension Name	name
Extension Version Number	version

Device Acknowledgement Message Extension Samples

This is a sample extension that may be included in the AReq message by the 3DS Server. The ACS may consume this additional information as part of its risk evaluation process.

```
"messageExtension": [{
  "name": "Dev Ack - Split-SDK",
  "id": "A000000802-001",
  "criticalityIndicator": false,
  "data": {
    "sdkAuthenticationType": ["02", "03", "04"],
    "sdkServerSignedContent": "xxxxxxxxxx",
    "sdkSignatureTimestamp": "20200109185123",
    "sdkType": "02",
    "splitSdkType": {
      "sdkVariant": "01",
      "limitedInd": "Y"
    }
    "splitSdkServerID": "validId",
    "version": "3.0"
  }
}]
```

This is a sample extension that may be included in the ARes message by the ACS. The 3DS SDK may use this additional information as part of its challenge processing.

```
"messageExtension": [{
  "name": "Dev Ack - Split-SDK",
  "id": "A000000802-001",
  "criticalityIndicator": false,
  "data": {
    "authenticationMethod": ["02", "04"],
    "deviceInfoRecognisedVersion": "1.5",
    "deviceUserInterfaceMode": "02",
    "version": "3.0"
  }
}]
```