EMV® Specification Bulletin No. 295

November 2023

EMV® 3-D Secure Bridging Message Extension v2.0

This Specification Bulletin No. 295 provides the updates, clarifications and errata incorporated into the EMV® 3-D Secure Bridging Message Extension since version 1.0

Applicability

This Specification Bulletin applies to:

- *EMV® 3-D Secure Bridging Message Extension, Version 2.0*

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.

Related Documents

EMV® 3-D Secure Bridging Message Extension, Version 1.0

Effective Date

- *November 2023*

Contents

Throughout Specification

Revisions added to improve grammar, consistency, clarity and readability without any effect on the meaning or interpretation of the specification are not included in this bulletin.

Introduction

This document describes the Bridging Message Extension and how existing EMV® 3-D Secure (3DS) v2.1.0 and v2.2.0 components can provide or consume additional data related to the *EMV® 3-D Secure Protocol and Core Functions Specification* (hereinafter referred to as the *Core Specification*) *v2.3.1.1* and is designed to evolve to include additional v2.3 features. The *EMV® 3-D Secure Protocol and Core Functions Specification v2.1.0, v2.2.0 and v2.3.1.0 is hereinafter referred to as the Core Specification v2.1, v2.2 and v2.3, respectively*.

The Bridging Message Extension enhances the existing v2.1.0 and v2.2.0 specifications by enabling the implementation of features that are incorporated in the v2.3.1.1 specification. In addition, during the migration to v2.3.1.1, support of the Bridging Message Extension will increase consistency of the key 3DS features provided in v2.1.0, v2.2.0 and v2.3.1.1.

This The first version of the Bridging Message Extension carries (v1.0) defined the Recurring Transaction dData, Additional dData, Challenge Data and File URL data that are not present or Data, which is used to enable automation of the switching between the 3DS SDK and an out-of-band (OOB) authentication application, better support the processing of recurring transactions, and incorporate selected elements, values and requirements that were introduced in v2.3.1.0. The second version of the Bridging Message Extension (v2.0) continues support for the v1.0 capabilities and provides additional elements/values that were defined in the *Core Specification v2.3.1.1*.

In the future, as new capabilities are added to the new 3DS specification versions, EMVCo will consider incorporating them, as appropriate, into a new version of the Bridging Message Extension.

The Bridging Message Extension defines four sets of data:

- Recurring Data;
- Additional Data;
- Challenge Data; and
- File URL Data.

Recurring Data, Additional Data and File URL Data contain new data or new values for existing data in the AReq/ARes, PReq/PRes or RReq messages for v2.1.0 and v2.2.0.

Challenge Data is only provided in CReq/CRes messages for the App-based flow when the Message Version Number is 2.2.0 (not 2.1.0).

The *EMV® 3-D Secure Bridging Message Extension* should be used in conjunction with the *Core Specification v2.3.1.1* and the *EMV® 3-D Secure Specifications—Frequently Asked Questions*, available on the EMVCo website.

For differences between v1.0 and v2.0 of the *EMV® 3-D Secure Bridging Message Extension*, please refer to *EMV® Specification Bulletin No. 295*, available on the EMVCo website.

Bridging Message Extension Support and Implementation

~~In addition, the~~ The 3DS ~~Server~~ sending component builds the 3DS v2.1.0 or v2.2.0 message ~~assuming~~ with the assumption that the ~~ACS~~ 3DS receiving component does not support the Bridging Message Extension, so the 3DS transaction can complete without the Bridging Message Extension. Then ~~it~~ the sending component provides the additional information in the Bridging Message Extension.

The 3DS v2.3.1.1 data elements present in the message extension may duplicate existing data elements from the 3DS v2.1.0 and v2.2.0 messages but contain new or different values. ~~According to the Core Specification v2.3, the~~ The data element values are set in the message extension according to the *Core Specification ~~v2.1 and v2.2, they are set in~~ v2.3.1.1*, while the core part of the 3DS message~~s~~. is set according to the *Core Specification v2.1.0 and v2.2.0*. In such cases, the data element value in the message extension overrides the data element value in the core part of the 3DS message.

If the Bridging Message Extension is supported, then the 3DS component shall fully support at least one of the data objects (Recurring ~~d~~Data, Challenge ~~d~~Data, Additional ~~d~~Data or File URL ~~d~~Data) of the message extension and implement the related requirements of the *Core Specification v2.3.1.1*, as shown below in Table 1.

Table 1 follows unchanged.

~~Some~~ These four data objects ~~have~~ are Optional ~~or Conditional presence~~ in the Bridging Message Extension messages, but at least one data object should be present to use the Bridging Message Extension.

The data elements inside these data objects may ~~also~~ have presence conditions (Required/Optional/Conditional~~). The presence condition of~~) related to:

- the other data elements in ~~an applies only when~~ the same data object ~~is present~~; or
- the data element in the 3DS message (AReq, ARes, …),

but not related to the other data objects in the Bridging Message Extension.

For example, in the Recurring Data object, the Recurring Date presence depends on the value of the Recurring Indicator. Another example is the Authentication Method presence that depends on the Transaction Status in the ARes or RReq message.

Bridging Message Extension Version

The Extension Version Number should be kept the same across all message exchanges in a 3DS transaction.

When responding, the recipient of the Bridging Message Extension shall use the same Extension Version Number for the message pair (AReq/ARes, CReq/CRes, PReq/PRes) as the one received. If the recipient does not support that Extension Version Number, it shall not include the Bridging Message Extension in its response.

Recurring Data

With the Recurring Data object, the 3DS Requestor and the 3DS Server can provide additional information to the ACS regarding recurring transactions, such as frequency, end date, etc.

If the Recurring Data object (see Table 4 for data elements) is present in the Bridging Message Extension, the ACS shall ignore the recurring transaction-related data (Recurring Expiry, Recurring Frequency) that may be present in the AReq message.

Challenge Data

With the Challenge Data object, the ACS and the 3DS SDK may automate the switching between the 3DS SDK and an OOB Authentication App during an OOB challenge. The 3DS SDK indicates that it supports automatic switching in the OOB App URL Indicator. If supported, the ACS provides to the 3DS SDK the OOB App URL and OOB App Label in the Challenge Data object. The 3DS SDK displays a button that invokes the switching to the OOB Authentication App.

The ACS may also use the Challenge Data object to request that the 3DS SDK mask the data entered by the Cardholder during a challenge.

The Challenge Data object shall only be provided if the Message Version Number of the CReq/CRes message is 2.2.0.

Challenge Flow with OOB Authentication Requirements

These requirements refer to Section 3.2 of the *Core Specification v2.3.1.1*.

The message extension support of OOB challenge-related data is limited to ACS UI Type = 04 (OOB). ACS UI Type = 06 (HTML OOB) is NOT supported in the 3DS Bridging Message Extension.

For the ACS and 3DS SDK that support the OOB App URL:

- the ACS shall implement Req 401, limited to ACS UI Type = 04,
- the 3DS SDK shall implement Req 399, Req 400, Req 403, Req 404, Req 406, Req 407, Req 408 and Req 409, limited to ACS UI Type = 04, and.

Challenge Flow with Data Entry Masking Requirements

The ACS requests the Challenge Data Entry to be masked by setting Challenge Data Entry Masking to Y (limited to ACS UI Type = 01).
The 3DS SDK shall implement Challenge Data Entry Masking (Figures 44 and 45, Table A.26).

Additional Data

With the Additional Data object, the 3DS Server, the ACS and the DS can share additional information from the 3DS v2.3.1.1 during the 3DS Authentication, for example:

- whether the OOB Authentication App used by the ACS supports the 3DS Requestor App URL;

- the Acquirer Country Code;

- the Authentication Method used by the ACS;

- the Card Security Code;

- the Device Information Version supported by the ACS;

- the Transaction Challenge Exemption applied by the ACS;

- the Challenge Error Reporting: detailed information in case of error in the CReq/CRes messages; or

- the reason for cancelling the Challenge.

Challenge Cancelation Indicator Requirements

In order to provide the Challenge Cancelation Indicator, ~~T~~the ACS shall implement ~~Req 45 and~~ the updates to Section 5.9.5 (ACS CReq Message Error Handling—01-APP) ~~of~~ in the *Core Specification*.

File URL Data

By using the File URL Data object, the 3DS Server may retrieve the Card Range Data in a file downloaded from the DS rather than from the PRes messages.

To use the file download, both the 3DS Server and the DS shall implement all the requirements from Section 5.6 (PReq/PRes Message Handling Requirements) in the *Core Specification v2.3.1.1.*

The Card Range Data in the file is provided in the format defined in the 3DS specification and corresponding to the protocol version of the PReq message.

Bridging Message Extension Data Elements

Table 2: Bridging Message Extension Data Elements

Data Element/ Field Name	Description	Source	Length/Format/ Values	Device Channel	Message Category	Message Inclusion
Assigned Extension Group Identifier		3DS SDK 3DS Server ACS DS		01-APP 02-BRW 03-3RI	01-PA 02-NPA	
Criticality Indicator		3DS SDK 3DS Server ACS DS		01-APP 02-BRW 03-3RI	01-PA 02-NPA	
Data		3DS SDK 3DS Server ACS DS		01-APP 02-BRW 03-3RI	01-PA 02-NPA	
Extension Name		3DS SDK 3DS Server ACS DS	Length: ~~15~~ 8 characters	01-APP 02-BRW 03-3RI	01-PA 02-NPA	

Data

Table 3: Data

Data Element/ Field Name	Description	Source	Length/Format/ Values	Device Channel	Message Category	Message Inclusion
Additional Data				01-APP 02-BRW 03-3RI	01-PA 02-NPA	
Challenge Data				01-APP	01-PA 02-NPA	
Extension Version Number		3DS SDK 3DS Server ACS DS	Value accepted: • ~~1.0~~ 2.0	01-APP 02-BRW 03-3RI	01-PA 02-NPA	
File URL Data				N/A	N/A	
Recurring Data				01-APP 02-BRW 03-3RI	01-PA 02-NPA	

Recurring Data

Table 4: Recurring Data

Data Element/ Field Name	Description	Source	Length/Format/ Values	Device Channel	Message Category	Message Inclusion
Recurring Amount				01-APP 02-BRW 03-3RI	01-PA 02-NPA	AReq = C Required if: • [3DS Requestor Authentication Indicator = 02 or 03; OR 3RI Indicator = 01 or 02] AND Recurring Indicator/Amount Indicator = 01 in the Recurring Data object
Recurring Currency				01-APP 02-BRW 03-3RI	01-PA 02-NPA	Required if the Recurring Amount is present in the Recurring Data object

Data Element/ Field Name	Description	Source	Length/Format/ Values	Device Channel	Message Category	Message Inclusion
Recurring Currency Exponent				01-APP 02-BRW 03-3RI	01-PA 02-NPA	Required if the Recurring Amount is present in the Recurring Data object
Recurring Date				01-APP 02-BRW 03-3RI	01-PA 02-NPA	Required if Recurring Indicator/ Frequency Indicator = 01 in the Recurring Data object
Recurring Expiry Field Name: `recurringExpiry`	Date after which no further authorisations are performed.	3DS Server	Length: 8 characters JSON Data Type: String Date format accepted: • YYYYMMDD	01-APP 02-BRW 03-3RI	01-PA 02-NPA	Required if there is an end date
Recurring Frequency				01-APP 02-BRW 03-3RI	01-PA 02-NPA	Required if Recurring Indicator/ Frequency Indicator = 01 in the Recurring Data object
Recurring Indicator				01-APP 02-BRW 03-3RI	01-PA 02-NPA	AReq = R if the Recurring Data object is present

Data Element/ Field Name	Description	Source	Length/Format/ Values	Device Channel	Message Category	Message Inclusion
						~~AReq = C~~ ~~Required if:~~ ~~• 3DS Requestor Authentication Indicator = 02 or 03; OR~~ ~~• 3RI Indicator = 01 or 02~~

Challenge Data

Table 5: Challenge Data

~~Note: Challenge Data is only provided if the Message Version Number of the CReq/CRes message is 2.2.0.~~

Data Element/ Field Name	Description	Source	Length/Format/ Values	Device Channel	Message Category	Message Inclusion
Challenge Data Entry Masking				01-APP	01-PA 02-NPA	
OOB App Label				01-APP	01-PA 02-NPA	CRes = C Required ~~if:~~ ~~the OOB App URL is available and~~ for ACS UI Type = 04~~;~~ ~~AND~~ if:

Data Element/ Field Name	Description	Source	Length/Format/ Values	Device Channel	Message Category	Message Inclusion
						• OOB App URL Indicator = 01 in the ~~CReq message~~ Challenge Data object AND • the ACS uses the OOB Authentication App automatic switching feature for this transaction
OOB App Status	Status code indicating the type of problem ~~type~~ encountered when using the OOB App URL.			01-APP	01-PA 02-NPA	
OOB App URL				01-APP	01-PA 02-NPA	CRes = C Required for ACS UI Type = 04 ~~if:~~ the OOB App Label is present AND if:

Data Element/ Field Name	Description	Source	Length/Format/ Values	Device Channel	Message Category	Message Inclusion
						• OOB App URL Indicator = 01 in the ~~CReq message; AND~~ Challenge Data object; AND • the ACS u~~tilis~~es the OOB Authentication App automatic switching feature for this transaction
OOB App URL Indicator			Length: ~~Variable, maximum 48~~ 2 characters	01-APP	01-PA 02-NPA	CReq = R if the Challenge Data object is present
OOB Continuation Indicator				01-APP	01-PA 02-NPA	CReq = C Required if~~:~~ ACS UI Type = 04~~;~~ ~~OR~~ in the ~~3DS SDK sends a CReq~~ CRes message ~~unless Challenge Additional Code = Y.~~

Additional Data

Table 6: Additional Data

Data Element/ Field Name	Description	Source	Length/Format/ Values	Device Channel	Message Category	Message Inclusion
3DS Requestor App URL Indicator				01-APP	01-PA 02-NPA	AReq = ~~R~~ C ~~AND~~ Required if Message Version Number = 2.2.0
3DS Requestor Authentication Indicator				01-APP 02-BRW	01-PA 02-NPA	AReq = C Required if 3DS Requestor Authentication Indicator = 08 or 09 or 10 Otherwise, Optional
3RI Indicator			Values accepted: • 17 = FIDO credential deletion • 18 = FIDO credential registration • 19 = Decoupled Authentication Fallback	03-3RI	01-PA 02-NPA	~~ARes = R~~ ~~AND~~ AReq = C Required if: • Message Version Number = 2.2.0 AND

Data Element/ Field Name	Description	Source	Length/Format/ Values	Device Channel	Message Category	Message Inclusion
			• 20–79 = Reserved for EMVCo future use (values invalid until defined by EMVCo)			• 3RI Indicator = 14, 15, 16, 17 or 18 Otherwise, Optional
Acquirer Country Code			Values accepted: • ISO 3166-1 numeric three-digit country codes, other than exceptions listed in Table A.5 of the *Core Specification v2.3.1.1*.	01-APP 02-BRW 03-3RI	01-PA 02-NPA	AReq = R if the Additional Data object is present
Acquirer Country Code Source				01-APP 02-BRW 03-3RI	01-PA 02-NPA	AReq = R if the Additional Data object is present
Authentication Method			Values accepted: • 16 = Electronic ID • 17–79 = Reserved for EMVCo future use (values invalid until defined by EMVCo)	01-APP 02-BRW 03-3RI	01-PA 02-NPA	

Data Element/ Field Name	Description	Source	Length/Format/ Values	Device Channel	Message Category	Message Inclusion
Browser Screen Color Depth			~~For a list of possible values, refer to https://www.w3schools.com/jsref/prop_screen_color_depth.asp~~	02-BRW	01-PA 02-NPA	
Card Security Code				01-APP 02-BRW 03-3RI	01-PA 02-NPA	
Card Security Code Status				01-APP 02-BRW 03-3RI	01-PA 02-NPA	
Card Security Code Status Source				01-APP 02-BRW 03-3RI	01-PA 02-NPA	Required if the Card Security Code Status is present in the Additional Data object
Challenge Cancelation Indicator	Note: The Additional Data object is not valid for the CReq/CRes messages. Therefore, the Challenge Cancelation Indicator may only be present in the RReq message.	~~3DS SDK~~ ACS		01-APP 02-BRW 03-3RI	01-PA 02-NPA	~~CReq = C~~ RReq = C

Data Element/ Field Name	Description	Source	Length/Format/ Values	Device Channel	Message Category	Message Inclusion
						• ~~Required in CReq for 01-APP if the authentication transaction was cancelled by user interaction with the cancellation button in the UI or for other reasons as indicated~~ • Required ~~in RReq~~ if the ACS identifies that the authentication transaction was cancelled for reasons as indicated Value of 04 or 05 is required if Transaction Status Reason = 14
Challenge Error Reporting				01-APP 02-BRW	01-PA 02-NPA	

Data Element/ Field Name	Description	Source	Length/Format/ Values	Device Channel	Message Category	Message Inclusion
Device Information Recognised Version			Values accepted: • ~~Any active~~ Active Device Information Data Version ~~is considered a valid value~~. Refer to *EMV® Specification Bulletin 255* for values.	01-APP	01-PA 02-NPA	ARes = R if the Additional Data object is present
Transaction Challenge Exemption				01-APP 02-BRW 03-3RI	01-PA 02-NPA	
Transaction Characteristics Field Name: transChar	Indicates to the ACS specific transactions identified by the Merchant. Refer to Merchant Risk Indicator in the *Core Specification v2.3.1.1*.	3DS Server	Size: Variable, 1–2 elements JSON Data Type: Array of string String: 2 characters Value accepted: • 01 = Cryptocurrency transaction • 02 = NFT transaction	01-APP 02-BRW 03-3RI	01-PA 02-NPA	AReq = O

File URL Data

Table 7: File URL Data

Data Element/ Field Name	Description	Source	Length/Format/ Values	Device Channel	Message Category	Message Inclusion
Card Range Data Download Indicator				N/A	01-PA 02-NPA	PReq = C Present only if the 3DS Server supports the Card Range Data File download
Card Range Data File URL				N/A	01-PA 02-NPA	Present if Card Range Data Download Indicator = Y in the ~~PReq message~~ File URL Data object and the DS supports the Card Range Data File download

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Message Format

Table 8: Message Extension Data Elements

Data Element	Field Name
Recurring Data	recurringData
Recurring Expiry	recurringExpiry
Additional Data	addData
3RI Indicator	threeRIInd
Transaction Characteristics	transChar

Bridging Message Extension Samples

Sample AReq Bridging Message Extension

```
"messageExtension":[{
    "name":"Bridging",
    "id":"A000000802-004",
    "criticalityIndicator":false,
    "data": {
        "version": "12.0",
    "data": {
        "recurringData": {
            "recurringAmount":"1234",
            "recurringCurrency":"826",
            "recurringExponent":"2",
            "recurringExpiry":"20240405",
            "recurringFrequency":"30",
            "recurringDate":"20220405",
            "recurringInd":{"amountInd":"01","frequencyInd":"01"}
        },
        "addData": {
            "acquirerCountryCode":"250",
            "acquirerCountryCodeSource":"01",
            "browserColorDepth":"24",
            "cardSecurityCode":"123",
            "cardSecurityCodeStatus":"Y",
            "cardSecurityCodeStatusSource":"01",
            "threeDSRequestorAuthenticationInd":"08",
            "transChar":["01"]
        }
    }
}]
```

Sample ARes Bridging Message Extension

```
"messageExtension":[{
    "name":"Bridging",
    "id":"A000000802-004",
    "criticalityIndicator":false,
    "data": {
        "version": "12.0",
    "data": {
        "addData": {
            "authenticationMethod":["07","08"],
            "cardSecurityCodeStatus":"Y",
            "cardSecurityCodeStatusSource":"02",
            "deviceInfoRecognisedVersion":"1.5",
            "transChallengeExemption":"08",
            "threeDSRequestorAppURLInd":"Y"
        }
    }}]
```

Sample RReq Bridging Message Extension

```
"messageExtension":[{
    "name":"Bridging",
    "id":"A000000802-004",
    "criticalityIndicator":false,
    "data": {
        "version": "12.0",
    "data": {
        "addData": {
            "authenticationMethod":["07","08"],
            "challengeCancel":"09",
            "challengeErrorReporting":{
                "threeDSServerTransID":
                "8a880dc0-d2d2-4067-bcb1-b08d1690b26e",
                "errorCode":"203", …
            }
        }
    }
}]
```

Sample CReq Bridging Message Extension

```
"messageExtension":[{
    "name":"Bridging",
    "id":"A000000802-004",
    "criticalityIndicator":false,
    "data": {
        "version": "12.0",
    "data": {
        "challengeData": {
            "oobAppStatus":"01",
            "oobAppURLInd":"01",
            "oobContinue":"02"
        },
        "addData": {
            "challengeCancel":"09"
        }
    }
}]
```

Sample CRes Bridging Message Extension

```
"messageExtension":[{
    "name":"Bridging",
    "id":"A000000802-004",
    "criticalityIndicator":false,
    "data": {
        "version": "12.0",
    "data": {
        "challengeData": {
            "oobAppLabel":"OOB APP",
            "oobAppURL":"https://oobapp.com/here",
            "challengeDataEntryMasking":"N"
        }
    }
}]
```

Sample PReq Bridging Message Extension

```
"messageExtension":[{
    "name":"Bridging",
    "id":"A000000802-004",
    "criticalityIndicator":false,
    "data": {
        "version": "12.0",
    "data": {
        "fileURLData": {
            "cardRangeDataDownloadInd":"Y"
        }
    }
}]
```

Sample PRes Bridging Message Extension

```
"messageExtension":[{
    "name": "Bridging",
    "id": "A000000802-004",
    "criticalityIndicator": false,
    "data": {
        "version": "12.0",
    "data": {
        "fileURLData": {
            "cardRangeDataFileURL":
                "https://server.dsdomainname.com/cardfile.json"
        }
    }
}]
```

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