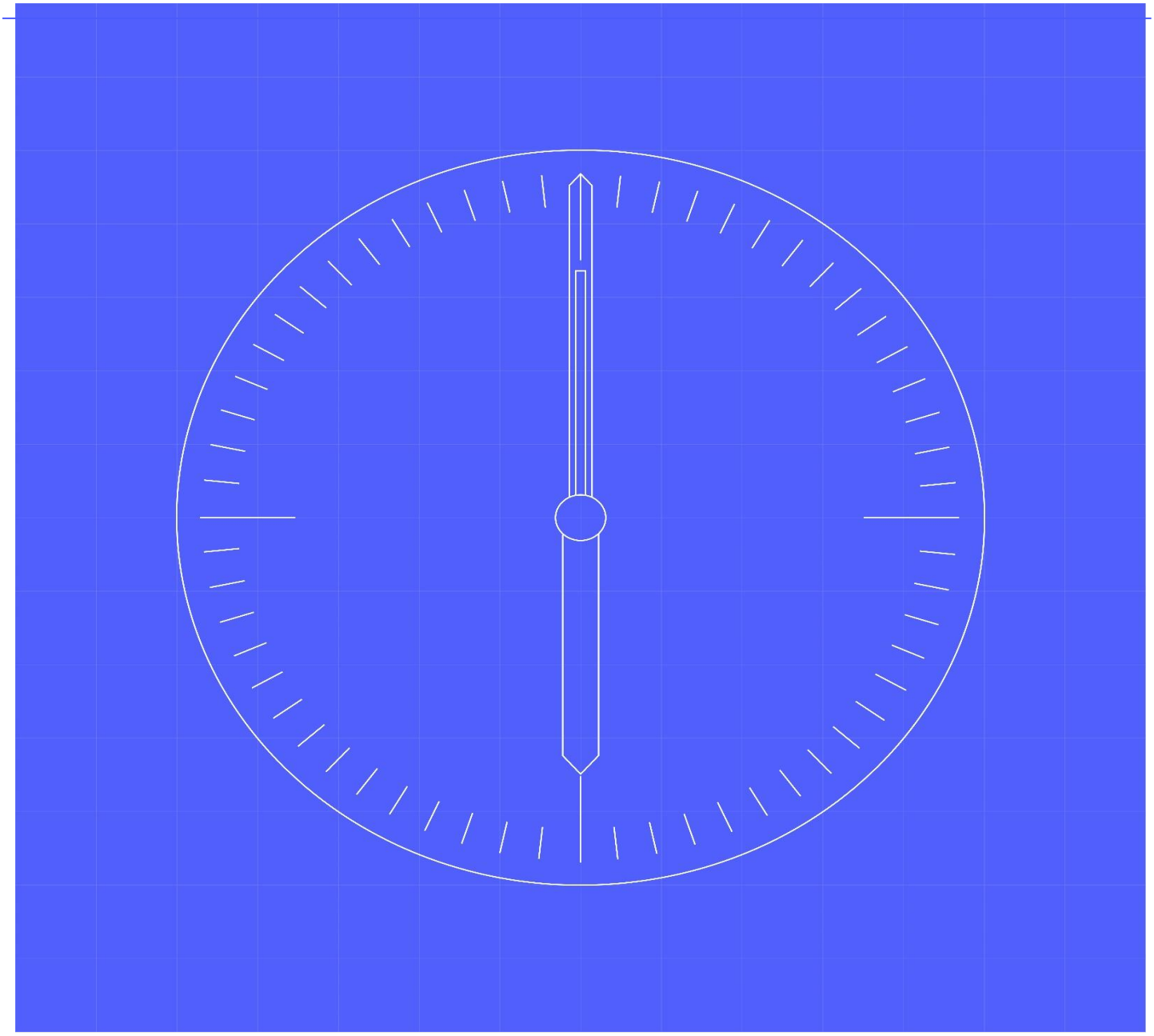
MHHS PROGRAMME
Industry-led, Elexon facilitated

MHHS Design Release Note
Interim Release 5.3
Release Date: 17-01-2024



Document owner	Document number	Version
Design Team	**DEL1275**	**V1.0**
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1.1 Change Record

Date	Author	Version	Change Detail
02/01/2024	MHHS Design Team	0.1	Initial Draft
15/01/2024	MHHS Design Team	1.0	Final Version

1.2 Reviewers

Reviewer	Role

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2 INTRODUCTION

These are the release notes for Interim Release 5.3 of the MHHS Design.

Use Release Notes to keep up with what's going on. Release notes provide a summary of what's new and what issues have been resolved within the design.

3 OVERVIEW

Interim Release 5.3 is a patch to Interim Release 5.

Improvements:

- Changes to correct Swagger

Interim Release 5.3 constitutes an updated version of Swagger, which has been uplifted to address found misalignments.

The below DINs delivered the changes in Swagger.

- MHHS-DIN-857
- MHHS-DIN-860

Further guidance on the Release.

Versioning:

Interim Releases are NOT a blanket updating of all the design artefacts and models to the next release number. Each Document artefact is separately version controlled and tracked. Interim releases are a collection of updated artefacts which are updated. The version number depends on the last revision of the artefact. Thus, an interim release will publish and consists of documents at different version numbers. Some documents contain multiple models, interfaces, or report definitions which each have a version number. The artefacts' own document version number may contain different objects at different version numbers depending on the changes made to the artefact.

Versions of design artefacts with tracked changes is available on the Red-Lined Design Artefacts page.

Below are the Design Interim Releases and their corresponding Swagger Versions, including the dates of publication and the upliftment of the DIP Simulator to the related Interim Release. Additionally, there is a column to indicate the effective date of each Interim Release during Systems Integration Testing.

Interim Release	Design Interim Release Published	Swagger Version	SIT Effective From Date	DIP Simulator Uplifted
IR2	05-Jul-23	1.2	30-Oct-23	11-Aug-23
IR2.1	11-Oct-23	1.2.1	30-Oct-23	20-Oct-23
IR2.2	08-Nov-23	1.2.2	08-Nov-23	08-Nov-23
IR2.3	29-Nov-23	1.2.3	20-Dec-23	15-Dec-23
IR3	02-Aug-23	1.3	11-Mar-24	03-Nov-23
IR4	30-Aug-23	1.4	11-Mar-24	03-Nov-23
IR5	04-Oct-23	1.5	11-Mar-24	03-Nov-23
IR5.1	17-Oct-23	1.5.1	11-Mar-24	03-Nov-23
IR5.2	14-Dec-23	1.5.2	11-Mar-24	05-Jan-24
IR5.3	17-Jan-24	1.5.3	11-Mar-24	Jan/Feb 24 (exact date TBD)
IR6	01-Nov-23	1.6	10-Jun-24	22-Mar-24
IR7	31-Jan-24	1.7	10-Jun-24	22-Mar-24

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IR8	03-Apr-24	1.8	02-Sep-24	21-Jun-24

JSON/YAML:

The best online tool we recommend verify the extent of the changes is: https://www.textcompare.org/yaml/. Comparing the YAML between versions 1.5 and 1.5.3 are clearly shown.

3.1 Release Feedback

Any queries or feedback on this release or the contents of this release note please contact us via Design@MHHSprogramme.co.uk

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4 Impacted Artefacts

The following table contains a list and versions of design artefacts/documents which have been updated.

Artefact	Version Number	Theme	Impact
MHHS-E2E001 - End-to-End Solution Architecture	**V3.5.2**	Supporting Documents	Solution Design Correction
MHHSPROGRAMME-DataCatalogue-1.5.3-domain.json	**V1.5.3**	Supporting Documents	Updated Swagger definitions
MHHSPROGRAMME-DataCatalogue-1.5.3-domain.yaml	**V1.5.3**	Supporting Documents	Updated Swagger definitions
MHHSPROGRAMME-DataTypes-1.5.3-domain.json	**V1.5.3**	Supporting Documents	Updated Swagger definitions
MHHSPROGRAMME-DataTypes-1.5.3-domain.yaml	**V1.5.3**	Supporting Documents	Updated Swagger definitions
MHHSPROGRAMME-Interfaces-EventCodes-1.5.3-domain.json	**V1.5.3**	Supporting Documents	Updated Swagger definitions
MHHSPROGRAMME-Interfaces-EventCodes-1.5.3-domain.yaml	**V1.5.3**	Supporting Documents	Updated Swagger definitions
MHHSPROGRAMME-RealCommonBlocks-1.5.3-domain.json	**V1.5.3**	Supporting Documents	Updated Swagger definitions
MHHSPROGRAMME-RealCommonBlocks-1.5.3-domain.yaml	**V1.5.3**	Supporting Documents	Updated Swagger definitions
MHHSPROGRAMME-SubmitEvents-1.5.3-resolved.json	**V1.5.3**	Supporting Documents	Updated Swagger definitions
MHHSPROGRAMME-SubmitEvents-1.5.3-resolved.yaml	**V1.5.3**	Supporting Documents	Updated Swagger definitions
MHHSPROGRAMME-SubmitEvents-1.5.3-swagger.json	**V1.5.3**	Supporting Documents	Updated Swagger definitions
MHHSPROGRAMME-SubmitEvents-1.5.3-swagger.yaml	**V1.5.3**	Supporting Documents	Updated Swagger definitions
MHHSPROGRAMME-Examples-0.3-domain.json	**V0.3**	Supporting Documents	Updated Swagger definitions

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MHHSPROGRAMME-Examples-0.3-domain.yaml	**V0.3**	Supporting Documents	Updated Swagger definitions

5 Resolved Issues

All fixes Design Issue Notifications (DINs) and the Request for Change (RFCs) to MHHS Design since the last release that have been resolved in this release are included in the list below:

DIN/RFC Ref	Description	Status
MHHS-DIN-857	Ensure all enumerated type that are obfuscated contain the obfuscated value in the enumerated list. This change affects the following data items: IF-035 DI-979 Response Code DI-800 Service Provider Appointment Scenario DI-838 Supplier Proposed Consent Granularity DI-126 Traditional Fall Back Read Frequency IF-036 DI-017 Consent Granularity Obfuscated DIP IDs will be 9999999999 as the regex dictates it needs to be a 10-character numeric string	Fixed
MHHS-DIN-860	At present the webhook callbacks are limited in their responses to 200 & 207. The extent of the responses needs to align with the other DIP APIs	Fixed

Refer to additional change information below and the published DIN log for further information on DINs listed

5.1 Additional Change information

5.1.1 MHHS-DIN-857

Description of change

Ensure all enumerated type that are obfuscated contain the obfuscated value in the enumerated list. This change affects the following data items:
IF-035

- DI-979 Response Code
- DI-800 Service Provider Appointment Scenario
- DI-838 Supplier Proposed Consent Granularity
- DI-126 Traditional Fall Back Read Frequency

IF-036

- DI-017 Consent Granularity

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Please refer to the screenshots below for change:

Change 1: DI-017 Consent Granularity

Before update:

```
119     DI-017-Consent-Granularity:
120         description : Describes the granularity of energy settlement data that a customer has d
121         type : string
122         maxLength : 1
123         example : H
124         enum:
125             - H # HH Consent Granted
126             - D # Daily Reads Only
127             - M # Monthly Reads Only
128
```

After update:

```
119     DI-017-Consent-Granularity:
120         description : Describes the granularity of energy settlement data that a customer has deemed
121         type : string
122         maxLength : 1
123         example : H
124         enum:
125             - H # HH Consent Granted
126             - D # Daily Reads Only
127             - M # Monthly Reads Only
128             - x # obfuscated value #DIN-857
129
130
```

Change 2: DI-126 Traditional Fall Back Read Frequency

Before update:

```
906     DI-126-Traditional-Fall-Back-Read-Frequency:
907         description : Supplier requested Traditional / Fall Back Meter Reading Frequency
908         type : string
909         nullable: true
910         maxLength : 1
911         example : Q
912         enum:
913           - W # Weekly
914           - F # Forntightly
915           - M # Monthly
916           - Q # Quarterly
917           - S  # Six Monthly
918           - A # Annually
919           - null # - DIN-476 - change for nullable enum
920
```

After update:

```
906     DI-126-Traditional-Fall-Back-Read-Frequency:
907         description : Supplier requested Traditional / Fall Back Meter Reading Frequency
908         type : string
909         nullable: true
910         maxLength : 1
911         example : Q
912         enum:
913           - W # Weekly
914           - F # Forntightly
915           - M # Monthly
916           - Q # Quarterly
917           - S  # Six Monthly
918           - A # Annually
919           - x # Obfuscated value #DIN-857
920           - null # - DIN-476 - change for nullable enum
921
```

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Change 3: DI-800 Service Provider Appointment Scenario

Before update:

```
2210    DI-800-Appointment-Scenario:
2211        description : Code used to identify the scenario around a Service Provider Appointment.
2212        type : string
2213        maxLength : 3
2214        example : COS
2215        enum:
2216            - COS # Change of Supplier
2217            - CSP # Change of SP
2218            - USP # Update existing SP App
2219            - SEG # Change of ConnType or MkSeg
2220            - MCA # Migration Change of Agent
2221            - MCS # Migration Cange of Supplier
2222            - ALG # Auto Alignment
2223
2224
```

After update:

```
2210    DI-800-Appointment-Scenario:
2211        description : Code used to identify the scenario around a Service Provider Appointment.
2212        type : string
2213        maxLength : 3
2214        example : COS
2215        enum:
2216            - COS # Change of Supplier
2217            - CSP # Change of SP
2218            - USP # Update existing SP App
2219            - SEG # Change of ConnType or MkSeg
2220            - MCA # Migration Change of Agent
2221            - MCS # Migration Cange of Supplier
2222            - ALG # Auto Alignment
2223            - xxx # Obfuscated value #DIN-857
2224
```

Change 4: DI-838 Supplier Proposed Consent Granularity

Before update:

```
2344    DI-838-Supplier-Proposed-Consent-Granularity:
2345        description : Supplier Proposed Domestic Indicator
2346        type : string
2347        nullable: true
2348        maxLength : 1
2349        example : H
2350        enum:
2351            - H # HH Consent Granted
2352            - D # Daily Reads Only
2353            - M # Monthly Reads Only
2354            - null  # - DIN-815
2355
```

After update:

```
2344    DI-838-Supplier-Proposed-Consent-Granularity:
2345        description : Supplier Proposed Domestic Indicator
2346        type : string
2347        nullable: true
2348        maxLength : 1
2349        example : H
2350        enum:
2351            - H # HH Consent Granted
2352            - D # Daily Reads Only
2353            - M # Monthly Reads Only
2354            - x # Obfuscated value #DIN-857
2355            - null  # - DIN-815
2356
```

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Change 5: DI-979 Response Code

Before update:

```
2476    DI-979-Response-Code:
2477        description : Outcome Code associated with a Business Process Action Request
2478        type : string
2479        minLength : 1
2480        maxLength : 1
2481        example : A
2482        enum:
2483            - A # Accepted
2484            - R # Rejected
2485            - L # Lapsed
2486            - W # Warning
2487
```

After update:

```
2476    DI-979-Response-Code:
2477        description : Outcome Code associated with a Business Process Action Request
2478        type : string
2479        minLength : 1
2480        maxLength : 1
2481        example : A
2482        enum:
2483            - A # Accepted
2484            - R # Rejected
2485            - L # Lapsed
2486            - W # Warning
2487            - x # obfuscated value #DIN-857
2488
```

Testing Impact

There is no testing impact as these changes relate to SIT functional testing for IR5 (not yet started).

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5.1.2 MHHS-DIN-860

Description of change

Observations from SIT have highlighted some inconsistencies in HTTP responses between participants systems and the DIP, this DIN has been raised to define a standard set of response codes that will be used. Also described are how http responses received from the DIP should be interpreted, and what http responses the DIP is expecting back from participants webhooks.

The tables below describe the expected behaviour, including any expected retry behaviour, be it automatic or manually initiated, that a participant system and the DIP are expected to undertake. The HTTP codes and retry polices attempt to follow, what is considered, standard industry practice.

The first table introduces the ingress of messages to the DIP. The automated retry and retry behaviour columns presents the suggested behaviour a participant's system is expected to follow, but not mandated as they will have their own mitigation policies already defined.

DIP Ingress ("Level 1" validation)					
Code	**Messages**	**Automated Retry**	**Reason**	**Action**	**Retry Behaviour**
2xx	**Successful**				
201	Messages Created		Messages successfully received by DIP and passed L1 validation (All messages have a MSG0000 in the corresponding response block)		
207	Some Messages Created	no	Some or no messages are created, i.e. some messages have a MSG0000 message in the corresponding response block, others will have a response code in the range MSG1000 to 1012.	Reform failed messages and resend in new transaction. If problem persists, contact DIP 1st line support	
2xx	**Other 200 messages**		The DIP will only send 201 or 207 in the successful receipt of messages		
4xx	**Client Errors**				
400	Bad Request	no	Malformed messages or HTTP Header content.	Reform message to align with swagger definitions. If submitting messages in-batch submit in smaller batches to establish problem message. If problem persists contact DIP 1st line support	
401	Unauthorised Error	no	Issues related to Message Signing Certificates, Header problems or Account Issue (this includes any errors related to the X-API Key).	Ensure certificate validity; check cert has not expired. If problem persists, contact DIP 1st line support	after rectifying cert issue reattempt sending messages

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403	Forbidden	no	Issues related to TLS Certificates (including authentication failures), alongside other general 403 related issues i.e., could be IP blocking	Contact DIP 1st line support	Retry after new security measures (cert/account) in place
404	Not Found	no	Resource not found	If problem persists, contact DIP 1st line support	Resource could be temporarily unavailable, hence assume a periodic retry
405	Method Not Allowed	no	Requested method unsupported	Contact DIP 1st line support	
406	Not Acceptable	no	Requested method unsupported	Contact DIP 1st line support	
408	Request Timeout	yes	System timeout waiting for resource	If problem persists, contact DIP 1st line support	Adopt an automated back-off and retry algorithm for sending messages.
413	Payload Too Large	no	Request is too large for firewall/gateway	Reduce payload size where possible, if not possible contact support.	retry after dialogue with 1st line support
429	Too Many Requests	yes	Rate limiting in force.	Wait, if symptom persists after cool-off period then contact support	Adopt an automated back-off and retry algorithm for sending messages.
4xx	Other 400 messages		The DIP will send any other 400 messages	Contact DIP 1st line support	
5xx	**Server Errors**				
500	Internal Server Error	yes	The DIP is aware that it has encountered an error or is otherwise incapable of performing the request	Retry, but if problem persists contact DIP 1st line support	Adopt an automated back-off and retry algorithm for sending messages.
502	Bad Gateway	yes			
503	Service Unavailable	yes			
504	Gateway Timeout	yes			

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505	HTTP Version Not Supported	no	Contact support	Contact DIP 1st line support	
5xx	Other 500 messages		The DIP will not send any other 500 messages		

The second table introduces the egress of messages to the DIP. The automated retry and retry behaviour columns presents the pattern of behaviour that the DIP will undertake in the event of an error code.

DIP Egress; i.e. webhook ("Level 3" validation)						
Code	**Messages**	**Retry**	**Reason**	**Action**	**Retry Behaviour**	**Notify Sender via a status Message**
2xx	**Successful**					
201	Messages Created		Messages successfully received by Recipient and passed L3 validation.			
207	Some Messages Created	No	Some messages successfully received by Recipient and passed L3 validation.	The DIP will automatically send status messages for those messages failing validation		Yes; those messages failing validation
2xx	**Other 200 messages**		Participant systems should only send 201 or 207 messages			
4xx	**Client Errors**					
400	Bad Request	no	Malformed messages or HTTP Header content.	The DIP will automatically send status messages for those messages failing validation		Yes
401	Unauthorised Error	no	Issues related to Message Signing Certificates, Header problems or Account Issue (this includes any errors related to the X-API Key).	Ensure certificate validity; check cert has not expired. If problem persists contact DIP 1st line support	If participant believes issue is fixed then request messages to be resent via DIP replay	No
403	Forbidden	no	Issues related to TLS Certificates (including authentication failures), alongside other general 403 related issues ie,could be IP blocking	Contact DIP 1st line support	If participant believes issue is fixed then request messages to be resent via DIP replay	No
404	Not Found	no	Resource not found	Resource could be temporarily unavailable, hence assume a periodic retry. If problem	If participant believes issue is fixed then request messages to be resent via DIP replay	No

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				persists contact DIP 1st line support		
405	Method Not Allowed	no	Requested method unsupported	Assume significant issue with participant system. Contact DIP 1st line support	If participant believes issue is fixed then request messages to be resent via DIP replay	Yes
406	Not Acceptable	no	Requested method unsupported	Assume significant issue with participant system. Contact DIP 1st line support	If participant believes issue is fixed then request messages to be resent via DIP replay	Yes
408	Request Timeout	yes	System timeout waiting for resource		The DIP will adopt a retry with an exponential back-off whilst attempts to rectify the issue are made	No
413	Payload Too Large	no	Request is too large for firewall/gateway	Participant can reduce size of webhook callback via API/portal. If still unsuccessful contact 1st line DIP support	If participant believes issue is fixed, then request messages to be resent via DIP replay	No
429	Too Many Requests	yes	Rate limiting in force.	Assumption is that the participant system has implemented some rate limiting on their gateway	The DIP will adopt a retry with an exponential back-off	No
4xx	Other 400 messages		The DIP is not expecting to receive any other 400 message	Contact DIP 1st line support		
5xx	**Server Errors**					
500	Internal Server Error	yes	The DIP is aware that it has encountered an error with the Participant system.	Contact DIP 1st line support	The DIP will adopt a retry with an exponential back-off whilst attempts to rectify the issue are made	No
502	Bad Gateway	yes				

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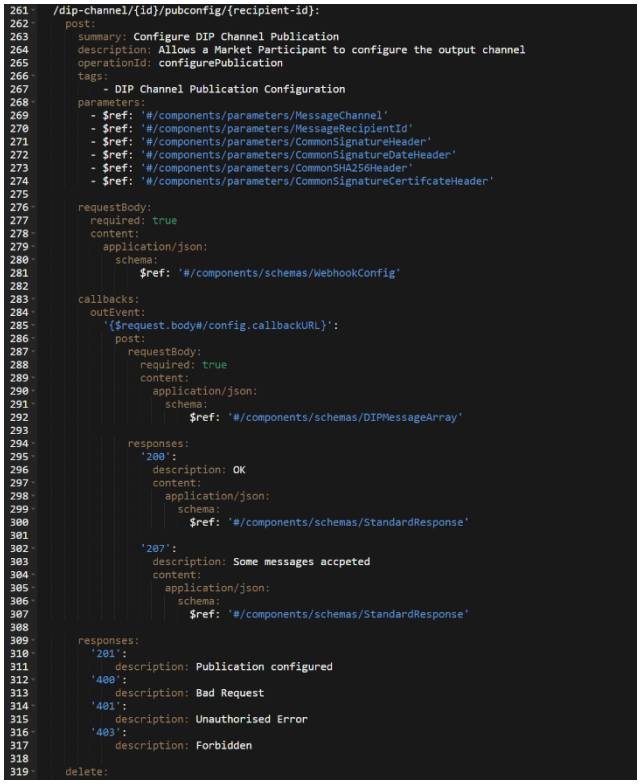
503	Service Unavailable	yes				
504	Gateway Timeout	yes				
505	HTTP Version Not Supported	no	Contact support			
5xx	Other 500 messages		The DIP is not expecting to receive any other 500 message			

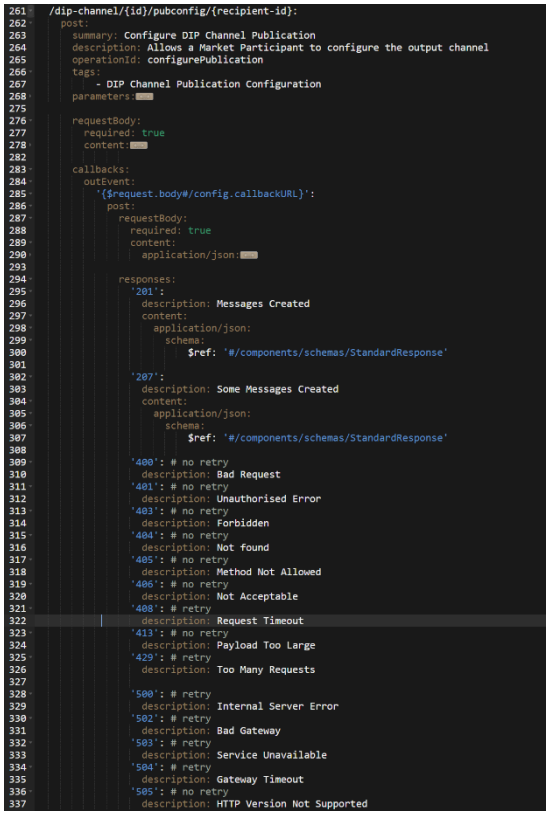
The above section is integrated into the E2E Solution Architecture document.

The actual change to the swagger to implement the above is as follows:

Before Update	After Update



```
/dip-channel/{id}/pubconfig/{recipient-id}:
  post:
    summary: Configure DIP Channel Publication
    description: Allows a Market Participant to configure the output channel
    operationId: configurePublication
    tags:
        - DIP Channel Publication Configuration
    parameters:
      - $ref: '#/components/parameters/MessageChannel'
      - $ref: '#/components/parameters/MessageRecipientId'
      - $ref: '#/components/parameters/CommonSignatureHeader'
      - $ref: '#/components/parameters/CommonSignatureDateHeader'
      - $ref: '#/components/parameters/CommonSHA256Header'
      - $ref: '#/components/parameters/CommonSignatureCertifcateHeader'

    requestBody:
      required: true
      content:
        application/json:
          schema:
              $ref: '#/components/schemas/WebhookConfig'

    callbacks:
      outEvent:
        '{$request.body#/config.callbackURL}':
          post:
            requestBody:
              required: true
              content:
                application/json:
                  schema:
                      $ref: '#/components/schemas/DIPMessageArray'

            responses:
              '200':
                description: OK
                content:
                  application/json:
                    schema:
                      $ref: '#/components/schemas/StandardResponse'

              '207':
                description: Some messages accpeted
                content:
                  application/json:
                    schema:
                      $ref: '#/components/schemas/StandardResponse'

    responses:
      '201':
          description: Publication configured
      '400':
          description: Bad Request
      '401':
          description: Unauthorised Error
      '403':
          description: Forbidden

  delete:
```



```
/dip-channel/{id}/pubconfig/{recipient-id}:
  post:
    summary: Configure DIP Channel Publication
    description: Allows a Market Participant to configure the output channel
    operationId: configurePublication
    tags:
        - DIP Channel Publication Configuration
    parameters:[...]

    requestBody:
      required: true
      content:[...]

    callbacks:
      outEvent:
        '{$request.body#/config.callbackURL}':
          post:
            requestBody:
              required: true
              content:
                application/json:[...]

            responses:
              '201':
                description: Messages Created
                content:
                  application/json:
                    schema:
                      $ref: '#/components/schemas/StandardResponse'

              '207':
                description: Some Messages Created
                content:
                  application/json:
                    schema:
                      $ref: '#/components/schemas/StandardResponse'

              '400': # no retry
                description: Bad Request
              '401': # no retry
                description: Unauthorised Error
              '403': # no retry
                description: Forbidden
              '404': # no retry
                description: Not found
              '405': # no retry
                description: Method Not Allowed
              '406': # no retry
                description: Not Acceptable
              '408': # retry
                description: Request Timeout
              '413': # no retry
                description: Payload Too Large
              '429': # retry
                description: Too Many Requests

              '500': # retry
                description: Internal Server Error
              '502': # retry
                description: Bad Gateway
              '503': # retry
                description: Service Unavailable
              '504': # retry
                description: Gateway Timeout
              '505': # no retry
                description: HTTP Version Not Supported
```

Testing Impact

There is no testing impact as these changes relate to SIT functional testing for IR5 (not yet started).

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6 Unaffected Artefacts

All the other Interim Release 5 files are unaffected by this Interim Release 5.3 patch.

7 Issues/Limitations

This section describes any known limitations and obstacles to the release and fixes implemented.

Certain artefacts cannot be change marked. Reference will be made to documents which identify where these changes exist within the artefacts. Artefact documents in PDF form will be issued with tracked changes on to highlight where the changes are in the document.

Certain artefacts do not include a version/change history record, change history section have been added in some cases and changes are tagged using comments to provide a reference of DIN changes made to the artefact. Within Excel while all changes are marked, not every cell is tagged with the DIN reference as it was not possible to tag groups of cells with a DIN ref.

Transition Design documents are not currently under design release, change and configuration control at this time.

If there are discrepancies following the Interim Release 5.3 changes in the Swagger/YAML, they are not going to be updated retrospectively for any previous Interim Releases.

8 Past Releases

Details of previous release please refer to the relevant release note for details:

Version Number*	Release Date	Release type
5.0	21/02/2023	Baseline
5.1	14/06/2023	Interim Release 1
5.2	05/07/2023	Interim Release 2
5.3	02/08/2023	Interim Release 3
5.4	30/08/2023	Interim Release 4
5.5	04/10/2023	Interim Release 5
5.2.1	11/10/2023	Interim Release 2.1
5.5.1	17/10/2023	Interim Release 5.1
5.6	01/11/2023	Interim Release 6
5.2.2	11/11/2023	Interim Release 2.2
5.2.3	29/11/2023	Interim Release 2.3
5.5.2	13/12/2023	Interim Release 5.2

* Various version numbering occurs on different documents for each release for details see previous release notes.

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