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Brian Diggle, Technical Architect

Generic FHIR Receiver Interop Capability - Specification

Interop Capability

# Document History

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| Version | Date | Amendment Summary |
| 0.1 | 1st June 2018 | Initial draft for review |
| 0.2 | 29th June 2018 | Updated following feedback and review workshop |
| 0.3 | 13th July 2018 | Updated following further review. Changes to GP-GFR-14 and GP-GFR-17 |
| 0.4 | 26th July 2018 | Updated following comments. Changes to |
| 0.5 | 13th September 2018 | Recommended architectural configuration to de-couple processing components. |

# Reviewers

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| Reviewer Name | Title / Responsibility | Date | Version |
| Brian Diggle | Technical Architect, GP Connect | 3rd June 2018 | 0.1 |
| Jonny Rylands | Senior Technical Architect, GP Connect | 5th June 2018 | 0.1,0.3 |
| Kevin Sprague | Interoperability Team Lead, Interoperability Specification Team | 4th June 2018 | 0.1 |
| Rob Gooch | Lead Architect, Digital Medicines and Pharmacies | 26th June 2018 | 0.1 |
| George Hope | Senior Solutions Architect, Interoperability | 26th June 2018 | 0.1 |
| Mike Moore | Project Manager, Integration Projects | 5th June 2018 | 0.1,0.3 |
| Toni Scott-Baxter | Programme Head, Transfer of Care | 5th June 2018 | 0.1 |
| Jonanthan Telfer | Senior Technical Architect, GP IT Futures | 19th June 2018 | 0.1 |
| Adam Lees | Associate Technical Architect, GP IT Futures | 5th June 2018 | 0.1 |
| Mike Stacey | Lead Business Analyst, GP Connect | 26th June 2018 | 0.1 |
| Simon Richards | MESH product owner, Service Management | 6th July 2018 | 0.2 |
| Adam Hatherly | Senior Technical Architect, Interoperability | 16th July 2018 | 0.3 |

# Acronyms and Terms

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| Acronym / Term | Description |
| FHIR | [Fast Health Interoperability Resources](https://www.hl7.org/fhir/messaging.html%232.24.1.3) |
| FHIR Message | A message which is constructed using FHIR resources, and which conforms to the requirements described at <https://www.hl7.org/fhir/messaging.html> |
| FHIR STU3 | Standard for Trial Use Version 3 – current version of the FHIR standard |
| MESH | [Message Exchange for Social Care and Health](https://digital.nhs.uk/services/message-exchange-for-social-care-and-health-mesh) |
| MESH API | The [MESH API](https://nhsconnect.github.io/spine-mesh/index.html) which NHS Digital provides which enables organsations to send messages to, or retrieve messages from the central MESH server. |
| MESH client | A standard component which NHS Digital can provide to organisations which interacts with the central MESH server to send and retrieve messages |
| MESH Endoint Lookup Service | Provides the capability to address MESH messages using a combination of a patient’s NHS Number, Date of Birth and Surname to deliver a message into the patients registered GP Practice MESH Mailbox. |
| PDS | [Personal Demographics Service](https://digital.nhs.uk/services/demographics) |

# Overview

The overarching goal of delivering a Generic FHIR Receiver capability into the GP practice system IT ecosystem is to lay the foundations for a wide range of FHIR messages to be delivered to GP practices. This will enable a standardised means of communicating updates to GP practice care records resulting from interactions a patient has had outside the registered GP practice.

Various means currently exist by which messages can be sent to GP Primary Care Practice Systems from other NHS care settings. No solution however is currently in place to provide an interoperable standard means of messaging updates into GP systems with national reach.

The Generic FHIR receiver therefore sets out a set of technical building blocks which provide this national standard. These are:

1. MESH for message transport
2. FHIR STU3 standard for message content
3. ITK3 for standard message distribution settings

These three building blocks are described below:

## MESH

Message Exchange for Social Care and Health is the strategic messaging platform for the NHS.

MESH is the strategic platform for asynchronous messaging in the NHS.

Viewed very simply, MESH is like a [post-restante](https://en.wikipedia.org/wiki/Poste_restante) service for electronic message delivery. Messages flow around the NHS using MESH as follows:

1. Sender creates message and sends to the MESH server
2. MESH server puts the message in the destination mailbox
3. Receiver collects the message from their inbox

For a more complete introduction to MESH, including details on how to get going if your organisation does not yet have MESH connectivity, see MESH - Message Exchange for Health and Social Care

MESH (previously known as DTS) is long established in the NHS as a reliable message delivery mechanism and provides an excellent level of existing capabilities in a wide variety of care settings.

Updates to GP systems rarely take place through a request with a response indicating that the update has been assimilated into a care record. Much more frequently, such incoming updates are processed via a workflow system present at the practice. Some form of clinical or administrative review of such updates is often required prior to accepting information as part of the definitive care record at the practice.

In view of this, the messaging approach made available through the use of MESH is a natural fit as it aligns more closely with the business processes which exist at GP practices. Through delivering a message into a workflow, the practice has the flexibility to set up local rules and processes for different message types and scenarios as each setting sees fit.

## HL7 FHIR STU3

The FHIR provides a standard means of exchanging healthcare information using a common set of resources which describe healthcare entities – the FHIR resource model.

The choice of the use of the HL7 FHIR interoperability standard is evident as this standard is seeing widespread adoption across the NHS.

STU3 (Standard for Trial Use Version 3) is (at time of writing) the current latest version of the FHIR standard, and it is this version of FHIR which is currently seeing significant investment and take up across many NHS interoperability solutions.

In using FHIR STU3 as the message format, conformance to the [FHIR Messaging framework](https://www.hl7.org/fhir/messaging.html) follows. Therefore all messages processed by the Generic FHIR Receiver conform to this framework.

## ITK3 – Interoperability Tool Kit

Version 3 of the ITK has aligned also with the HL7 FHIR STU3 to add a number of messaging options which provide support for the workflow based nature of GP practice updates flowing from organisations external to the practice.

ITK3 has been built using the FHIR Message construct and provides therefore a lightweight standard means of enriching this construct with the options and message metadata needed to implement this solution.

# The Generic FHIR Receiver

The Generic FHIR Receiver therefore is the name of the component which will receive messages incoming to the GP practice which have been constructed using the building blocks described above:

* Messages delivered using MESH, which are
* structured using FHIR STU3 messages, as
* FHIR Messages which meet the ITK3 FHIR STU3 Messaging profile.

## Envelopes and Payloads

FHIR Messages can be viewed like physical letters with two components:

1. The message envelope, described below as the “Message Header”.
2. The message contents, described below as the “Message Payload”

## Generic FHIR Receiver components

The Generic FHIR Receiver is described as a single delivered capability in this document.

It is worth clarifying that capability may be developed as a set of interacting components which co-operate to process incoming messages.

The diagram below provides a conceptual view the components involved in processing a message:



These components are described below:

### MESH Server

The MESH server acts like a “post restante” postal service storing messages in a mailbox at a central location until they are collected up by the owner of the mailbox

### Message Retriever

This is a component which acts like the owner of a mailbox, and visits (i.e. polls) the central mailbox on a regular basis to retrieve any message which may have been left there

In most primary care systems, the Message Receiver is an existing component which makes use of either the MESH client or the MESH API to retrieve messages from the central mailbox.

There is no change required to primary care systems unless a choice is made to move from use of the MESH client to the MESH API (or vice versa)

### Message Distributor

Various different kinds of messages will be dropped off at the central mailbox. The message distributor sorts these messages which have already been collected, and distributes these messages internally for processing.

A number of different message types already flow from the wider NHS into the practice system via MESH. Therefore it is likely that a component already exists which has the responsibility of sorting these different messages and distributing them onto downstream components which have more specific responsibility of handling a particular message type or types.

One of these downstream components is the Generic FHIR Receiver.

In some implementations, the Message Receiver and Message Distributor may be a single component which is responsible for both retrieval and distribution of messages towards components responsible for handling specific message types.

Where the message distributor component exists separately, multiple instances of this component may exist to ensure that messages can continue to be distributed quickly when incoming message volume increases or spikes.

### Generic FHIR Receiver

The Generic FHIR Receiver is responsible for handling all messages it receives from the Message Distributor which are of a specific MESH message type, ensuring that messages are successfully processed into the practice workflow system. This message type is defined as:

*All messages which are constructed by senders as conforming to FHIR STU3 Messaging framework as defined at* [*https://www.hl7.org/fhir/messaging.html*](https://www.hl7.org/fhir/messaging.html) *and which additionally comply with the ITK3 message distribution standard.*

In terms of MESH configuration, this message type will be associated with a set of Workflow IDs which have been created to map to messaging use cases which have been implemented using this standard format.

This component does not yet exist in primary care systems.

The Generic FHIR Receiver naturally can be decomposed into two separate processing components:

* The Envelope Processor
* Payload Processor

In the recommended architecture above, a message queue is placed inbetween the Envelop Processor and the Payload processor. This de-couples these two components, enabling them to be scaled horizontally as load requires. This architectural configuration also provides a modular approach to integation with the workflow system of choice at the practice.

**Envelope Processor**

This component is responsible for looking at the message envelope – akin to the information on the outside of the letter.

In FHIR and ITK3 terms this means that the envelope processor is responsible for the following:

1. Verifying that the message is correctly formed XML
2. Verifying that the message is a valid FHIR Message conforming to the ITK3 message distribution standard
3. Upon message validation failure, the Envelope Processor undertakes no further processing of the message, beyond ensure that a negative infrastructure aknowledgement is sent if this has been requested.
4. Upon successful validation, extraction of the message content – the FHIR Message payload – and distribution of these to the appropriate instance of the payload processor

Multiple instances of this component may exist to ensure that messages can continue to be processed quickly when incoming message volume increases or spikes.

**Payload Processor**

The payload process is a component which is responsible for correct and appropriate processing of a particular message payload. This component will know the expected structure of the payload and is responsible for onward processing of this information which contains the clinical data intended by the message sender to be assimilated into the care record of the registered practice of the patient.

The component will have the following responsibilities:

1. Verifying that the FHIR Message payload is in the correct format and validates according to the FHIR resource profiles defined in the payload message definition.
2. Validating the payload conforms to an business requirements stated in the payload FHIR Implementation Guide
3. Sending of negative infrastructure type ITK3 Responses as a result of validation failure when requested to do so.
4. Upon message validation failure, the Payload Processor undertakes no further processing of the message.
5. Upon successful validation of the payload, sending of positive infrastructure type ITK3 Responses as a result of validation success when requested to do so.
6. Matching of the message subject as defined in the payload to a known patient registered at the practice.
7. Sending of business type ITK3 Responses indicating success/failure of patient matching when requested to do so.
8. Raising and initial assignment of workflow task into the practice workflow system including all clinical data contained in the payload. Certain information contained in messages may be deemed acceptable by local practice management policy to be written directly to the care record.

There may be a separate instance of the Payload Processor per known payload format. This configuration is illustrated in the above diagram. Additionally multiple instances of this component may exist to ensure that messages can continue to be processed quickly when incoming message volume increases or spikes.

### Workflow

The workflow component is an existing component at the GP practice system which is used to manage practice business processes. Functionality has been implemented to facilitate incoming updates to GP systems from outside the practice boundary.

Change may be required to this component to facilitate the creation of new task handling capability arising from the receipt of new types of incoming updates.

# ITK Message Flows

Where ITK3 Responses are requested by message senders, messages flow between senders and the Generic FHIR receiver according to a number of acceptable patterns.

Please refer to <https://nhsconnect.github.io/ITK3-FHIR-Messaging-Distribution/explore_response_patterns.html> for more information.

It is worth noting that, where an ITK3 response has been generated by an organisation outside the registered GP practice of a patient, the instance of the Generic FHIR Receiver at the registered GP practice will need to receive and process the ITK3 response appropriately. That is, the ITK3 Response payload will be one of the payloads which is understood and processed by the Generic FHIR Receiver.

# Principles and Requirements

The following requirements describe the key component, the Generic FHIR Receiver, which will makes up core of this delivery.

The keywords ‘**MUST**’, ‘**MUST NOT**’, ‘**REQUIRED**’, ‘**SHALL**’, ‘**SHALL NOT**’, ‘**SHOULD**’, ‘**SHOULD NOT**’, ‘**RECOMMENDED**’, ‘**MAY**’, and ‘**OPTIONAL**’ on this site are to be interpreted as described in [RFC 2119](https://www.ietf.org/rfc/rfc2119.txt).

## General Requirements

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| ID | Description |
| GP-GFR-1 | Updates arising from healthcare interactions MUST be communicated to the Generic FHIR Receiver asynchronously. |
| GP-GFR-2 | Messages MUST be constructed using the HL7 FHIR STU3 standard. |
| GP-GFR-3 | Messages MUST be constructed and processed using XML as the FHIR serialization format. |
| GP-GFR-4 | Where a patient record update is the intended result of the message, the message MUST be destined for the registered practice of the patient, as defined in PDS. |

## Message Transport

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| ID | Description |
| GP-GFR-5 | MESH MUST be supported as a message transport mechanism through which messages are delivered to the Generic FHIR Receiver. |
| GP-GFR-6 | Message senders creating messages intended to update the care record of a patient at their registered practice SHOULD use the MESH Endpoint Lookup Service to route messages to the registered practice MESH mailbox. |
| GP-GFR-7 | The Generic FHIR receiver MUST process the set of messages which are defined by the set of MESH workflow IDs created for each identified use case where messages are targeted at the Generic FHIR Receiver. This set shall include the workflow IDs created for ITK3 Response messages associated with these use cases. |
| GP-GFR-8 | Where existing components are in place which are responsible for polling MESH for new messages, these components MUST forward the set of messages defined by the set of workflow IDs created for each identified use case to the Generic FHIR receiver. |

## ITK3 Header Requirements

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| ID | Description |
| GP-GFR-9 | MESH Messages SHALL be constructed as [FHIR Messages](https://www.hl7.org/fhir/messaging.html).  I.e. where the [MESH client](https://digital.nhs.uk/services/message-exchange-for-social-care-and-health-mesh/technical-information-for-message-exchange-for-social-care-and-health-mesh) is used, the MESH .ctl file content will be a FHIR Message. Where the [MESH API](https://nhsconnect.github.io/spine-mesh/index.html) is used, the payload for the Send Message API call or Download Message API call will be a FHIR Message. |
| GP-GFR-10 | The MessageHeader MUST be used as defined by ITK3, and will therefore be profiled according to the FHIR StructureDefinition <https://fhir.nhs.uk/STU3/StructureDefinition/ITK-MessageHeader-2> |
| GP-GFR-11 | The Generic FHIR receiver MUST understand and conform to the ITK3 message distribution requirements defined in the FHIR message header in order to correctly process incoming messages. |
| GP-GFR-12 | Where the MessageDefinition extension is not defined, the message SHALL be considered invalid and result in a negative ITK3 Response, with Response code 10002. |
| GP-GFR-13 | Where no focus element has been defined (i.e. there is no payload), the message SHALL be considered invalid and result in a negative ITK3 Response, with Response code 10002. |

## Patient Matching

Where a patient record update is the intended result of the message, the following requirements SHALL apply:

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| ID | Description |
| GP-GFR-14 | The Generic FHIR Receiver SHALL match the patient metadata found in the FHIR Message payload to a patient record of type Regular (GMS/PMS) in the practice care record data store. |
| GP-GFR-15 | The payload SHALL contain a resource profiled to <https://fhir.hl7.org.uk/STU3/StructureDefinition/CareConnect-Patient-1> which SHALL contain the following data items as a minimum where information is available to facilitate patient matching:   * patient.name.family * patient.identifier(nhsNumber) * patient.birthDate * patient.gender   Matching to a single patient may be possible using a subset of these data items. |
| GP-GFR-16 | The Generic FHIR receiver MAY identify the patient resource found in the payload through the following XPATH expression: /Bundle/entry//resource/Patient |
| GP-GFR-17 | Where the MESH endpoint lookup service has not been used by the messaging use case (as indicated by the To\_DTS field in the MESH .CTL file), the Generic FHIR Receiver MAY perform a PDS Trace to prior to local patient matching to verify the NHS Number specified in the patient metadata is correct given the supplied demographic details as described above. |

## ITK3 responses

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| ID | Description |
| GP-GFR-18 | Where ITK3 responses have been requested, the Generic FHIR receiver MUST generate these messages according to the requirements at [https://nhsconnect.github.io/ITK3-FHIR-Messaging-Distribution/explore\_response\_structure.html](https://nhsconnect.github.io/ITK3-FHIR-Messaging-Distribution/explore_response_structure.html%20) |
| GP-GFR-19 | Where the Generic FHIR Receiver generates an ITK3 Response with Response Code 30001 to 30003, this ITK3 Response SHALL NOT itself request an ITK3 business ackowlegment response.  Where the Generic FHIR Receiver generates an ITK3 Response with Response Code 10001 to 20012, this ITK3 Response SHALL NOT itself request an ITK3 business ackowlegment response.  Further information on ITK3 Response patterns can be found at <https://nhsconnect.github.io/ITK3-FHIR-Messaging-Distribution/explore_response_patterns.html> |
| GP-GFR-20 | ITK Responses SHALL be mapped to error conditions as defined at <https://nhsconnect.github.io/ITK3-FHIR-Messaging-Distribution/explore_response_codes.html> |
| GP-GFR-21 | The Generic FHIR receiver SHALL itself have the capability to process incoming ITK3 responses which have been generated by another instance of the Generic FHIR receiver. These incoming ITK3 Responses are defined as described in GP-GFR-7   * Where a received ITK3 response contains an error condition, the Generic FHIR Receiver SHALL ensure that the issue is logged and appropriate notifications are raised for action at the practice. * Where a received ITK3 response contains a success condition, the Generic FHIR Receiver MAY notify/display completion of message processing at the destination. |
| GP-GFR-22 | The Generic FHIR Receiver SHALL validate that the message and payload conforms to associated MessageDefinition. Where the message header element InfAckRequested is set to true:   * If validation passes, an ITK3 response SHALL be sent to indicate that the message has been received, and that the payload is understood and validated. The ITK3 Response code 20013 shall be used. * If validation fails, an ITK3 response SHALL be generated which includes the appropriate “negative” response code as described at <https://nhsconnect.github.io/ITK3-FHIR-Messaging-Distribution/explore_response_codes.html> |
| GP-GFR-23 | Where the Message header BusAckRequested element has been set to true, and following successful message structure validation, the Generic FHIR Receiver SHALL send the following ITK Response to indicate success/failure of patient matching:   * Where matching is unsuccessful, and a business acknowledgement has been requested, an ITK3 response shall be generated which shall include ITK3 response code 30002 or 30003 * Where matching is successful, and a business acknowledgement has been requested, an ITK3 response shall be generated which shall include the ITK3 response code 30001 |
| GP-GFR-24 | All ITK Responses SHALL indicate the original message identifier in the MessageHeader.response.identifier element, as described at [https://www.hl7.org/fhir/messaging.html#2.24.1.3](https://www.hl7.org/fhir/messaging.html%232.24.1.3), to ensure that the context of the original message is available to the sender of that message. |

## Payload requirements

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| ID | Description |
| GP-GFR-25 | The FHIR message payload is defined as the full contents of the FHIR Bundle, or the single FHIR resource, referenced in the focus element of the FHIR Message Header. |
| GP-GFR-26 | The Generic FHIR receiver shall understand and be capable of processing the set of payload formats as defined by the set of MessageDefinition FHIR resource URLs held in external configuration. |

## Downstream processing requirements

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| ID | Description |
| GP-GFR-27 | Where the messaging use-case arises from a clinical event as a patient interacts with an NHS entity outide the patient’s registered practice, the Generic FHIR receiver shall process messages downstream towards the patient record where a successful patient match has taken place. This may be through creation of a task in the practice workflow, or through some form of automated attachment/filing to the patient’s care record. |

## FHIR profile requirements

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| ID | Description |
| GP-GFR-28 | FHIR profiles used to define the FHIR Message “wrapper” (i.e. all resources found excluding the focus element of the FHIR Message Header) will align to the standard set of ITK3 profiles as described at <https://nhsconnect.github.io/ITK3-FHIR-Messaging-Distribution/explore_bundle_type.html> |
| GP-GFR-29 | Where a new payload format is required in future as no existing payload format is appropriate for the use case, the new payload format SHALL where possible re-use FHIR profiles already understood by the Generic FHIR Receiver. |
| GP-GFR-30 | Resources profiles processed by the Generic FHIR Receiver SHALL be either CareConnect profiles as defined at <https://fhir.hl7.org.uk/> or directly derived from these. |

## FHIR validation

The Generic FHIR receiver SHALL perform FHIR structure validation of incoming messages in the following way:

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| ID | Description |
| GP-GFR-31 | Resources found in the ITK3 message header SHALL be validated against the resource profile identifier as stated in meta.profile element of the resource |
| GP-GFR-32 | Resources found in the ITK3 message payload SHALL be validated against the CareConnect profiles as defined at https://fhir.hl7.org.uk  For example, if a patient resource profiled to <https://fhir.nhs.uk/STU3/StructureDefinition/CareConnect-GPC-Patient-1> is found in the payload, this resource SHALL be validated against its parent CareConnect resource <https://fhir.hl7.org.uk/STU3/StructureDefinition/CareConnect-Patient-1> |
| GP-GFR-33 | Where FHIR validation is performed against StructureDefinitions, ValueSets or CodeSystems held on servers external to the Generic FHIR Receiver, local cached copies of these SHOULD be utilised in order to meet processing throughput requirements. |
| GP-GFC-34 | FHIR validation of clinical terminology (i.e. SNOMED CT) against external terminology servers MAY be carried out only where processing througput requirements can be met. |

## Resource References

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| ID | Description |
| GP-GFR-35 | The ITK3 Message Header SHALL NOT contain resource references to resources found in the message payload. |
| GP-GFR-36 | The ITK3 payload SHALL NOT reference resources which are included in the ITK3 message header. |

## Volumetric and Performance Requirements

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| ID | Description |
| GP-GFR-37 | The interval between polls for new messages at each serviced MESH mailbox SHALL be between 5 and 10 minutes |
| GP-GFR-38 | The Generic FHIR Receiver SHALL provide a sustained message processing throughput of   * at least 100 messages/second for messages of size less than 1Mb * at least 10 messages/second for messages of size greater than or equal to 1Mb and less than 100Mb. * at least 1 messages/second for messages of size greater than or equal to 100Mb and less than 1Gb. * at least 0.1 messages/second for messages of size greater than or equal to 1Gb and less than or equal to 20Gb (the maximum supported by MESH through chunked message retrieval).   This requirement assumes a scenario where messages are continually backed up for processing such that the Generic FHIR Receiver is operating under sustained maximum load. |
| GP-GFR-39 | The Generic FHIR Receiver SHOULD be architected in such as way as to protect overall system throughput from degradation when processing messages larger than 100Mb. |
| GP-GFR-40 | Upon completion of a message download from MESH, the message SHOULD be picked up for processing by the Generic FHIR Receiver within 1 minute. This includes all intermediate messaging routing to the destination of the Generic FHIR Receiver. |

## Message Logging requirements

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| ID | Description |
| GP-GFR-41 | The system SHALL log all messages processed by the Generic FHIR Receiver, storing the full FHIR message (ITK Header and payload) as it was received to ensure that support desks have access to the required information when investigating incidents/issues. |
| GP-GFR-42 | Logged messages shall be retained for at least one year, and may be archived such that access times to data older than one month may be lengthened to one working day rather than being immediately available. |

## Software design requirements

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| ID | Description |
| GP-GFR-43 | The Generic FHIR Receiver SHOULD be built in such a way that the message transport mechanism used (MESH only initially) is de-coupled from message processing logic. This will enable other message delivery mechanisms to be added in future as available architectural options emerge/evolve. |
| GP-GFR-44 | The Generic FHIR receiver SHOULD be engineered in such a way as the dependency on the latest version of FHIR (at time of writing STU3) is abstracted through the application of separation of concerns software engineering principles. I.e. the Generic FHIR receiver shall be engineered with a view to future capability of processing messages which use multiple versions of the HL7 FHIR standard. |

## Operability requirements

A key property of the Generic FHIR Receiver is the degree to which it can be used without additional development and release cycles as new healthcare messaging use-cases emerge. This property can be described as the “Operability” of the Generic FHIR Receiver.

A set of principles and requirements are set out below which help to ensure that the Generic FHIR Receiver has a high degree of operability.

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| ID | Description |
| GP-GFR-45 | Re-use of the Generic FHIR Receiver known payload formats in additional NHS use cases MUST be achieved through configuration only where an existing payload format is appropriate. |

The following requirements will facilitate the guiding principle to achieve a high level of operability

### MESH configuration

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| ID | Description |
| GP-GFR-46 | The Flow of appropriate messages to the Generic FHIR receiver MUST be controlled by MESH server rules in the form: From: {MESH Mailbox ID}, To {MESH Mailbox ID}, For {Workflow ID} |
| GP-GFR-47 | For each new NHS MESH messaging use case, a new MESH workflow ID will be created and will be used to control flow of messages for this use case. |
| GP-GFR-48 | The MESH workflow ID defines the *use case* associated with the message. For example the GP Connect f*ederated “writeback”* use case will be defined as a MESH workflow ID, and have an ITK event type of “ITK GP Connect Send Document” with an associated message definition ID describing the payload format. |

### ITK3 Messaging configuration

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| ID | Description |
| GP-GFR-49 | To facilitate interoperability, the sender SHALL specify the ITK3 Message Definition Identifier in the [ITK Message Handling](https://nhsconnect.github.io/ITK3-FHIR-Messaging-Distribution/explore_hand_spec.html#itkmessagehandling-extension) extension. This defines the structure of the message instance and caters for a situation where a message definition has multiple versions. I.e. where an ITK3 Event type has multiple associated message definitions as the payload format evolves. |

### Generic FHIR Receiver Configuration

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| ID | Description |
| GP-GFR-50 | The set of MESH workflow IDs which the Generic FHIR Receiver processes SHALL BE either:   * Not defined by the Generic FHIR Receiver or * Defined in configuration and read by the Generic FHIR Receiver at runtime. |
| GP-GFR-51 | The set of ITK3 event types and associated message definitions understood and accepted by the Generic FHIR Receiver will necessarily be defined at the software build time. However, this information MUST be presented as runtime configuration to easily enable the capabilities of the Generic FHIR Receiver to be understood by system administrators. |