



Global PAYplus Version 4.6.3

## **GPP Interfaces**

Technical Guide

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**Version Control**

Version	Date	Summary of Changes
1.0		Document Created
1.1	02 Aug 2015	Documented updated, added Mass Payment module, pre-processing flow not active behavior. Added clarifications regarding the available attributes in different synchronization modes (Synchronic and Asynchronous models). Added Request/Response Protocols
2.0	December 2015	Updated for Rebranding

## Table of Contents

<b>1</b>	<b>INTRODUCTION.....</b>	<b>5</b>
1.1	Target Audience.....	5
1.1	Common Language .....	5
<b>2</b>	<b>INTERFACE PROPERTIES .....</b>	<b>6</b>
2.1	Descriptive Attributes .....	6
2.2	Interface Behavioral Attributes.....	6
2.2.1	Mass Payments Constraints Regarding Interface Properties .....	7
2.3	Request and Response Attributes .....	7
<b>3</b>	<b>REFERENCE DATA .....</b>	<b>9</b>
3.1	Interface Profile .....	9
<b>APPENDIX A: INTERFACES CONTINGENCY IN MASS PROCESSING MODULE, ‘PRE-PROCESSING’ FLOW (‘NOT ACTIVE BEHAVIOR’) .....</b>		<b>ERROR! BOOKMARK NOT DEFINED.</b>

# 1 Introduction

The Interfaces infrastructure is responsible for all data that enters and exits GPP. The Interfaces are the external bank's back office systems that GPP interacts with through an interchange of messages. It includes:

- Support of different methods of synchronization: synchronous and asynchronous
- Various transport protocols such as MQ, Web service (over http or JMS), file drops
- Support in various message formats: ISO20022, D+H message proprietary (interface specific), customer specific format
- The metadata regarding the various interface interactions, which is stored in the INTERFACE\_TYPES database table. It is used to capture interface attributes and properties, for example, Interface connection points, Transport protocol, Message format, and Inactivity behavior.

## 1.1 Target Audience

This technical guide is intended for IT technical personnel and GPP users who need to know about the GPP Interfaces capabilities.

## 1.1 Common Language

To better understand the Interfaces infrastructure, the following definitions are provided to support a common language:

- Incoming interface type: GPP functions as the server: it gets the request and returns the response.
- Outgoing interface type: GPP functions as the client: it sends the request and may or may not get a response.
- Synchronous model: Valid for incoming and outgoing types. GPP waits for a response before continuing the flow.
- Asynchronous model: GPP parks the payment in a certain 'Wait status', as defined in the interface metadata. When a response is accepted, flow continues.

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Note: Not always applicable, i.e. for Mass Payments module, applicable in SubBatch Completion flow, but not applicable for interfaces involved in the PreProcessing stage of the flow. For more information, see [STORE](#).

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- **Monitor** field: Signals the status of the communication between GPP and the interface. For available values, see [Interface Monitor Index](#).
- MESSAGE\_EXTERNAL\_INTERACTION DB table (and also user interface view): Dynamic table that holds outgoing and incoming requests and responses. It is used for logging and also for operational needs. Records are stored with MID (Unique Message ID) for transactions or Internal File Id (for files), interface type, sub type and timestamp.
- D+H proprietary message: D+H proprietary XML representation of a payment message.

## 2 Interface Properties

The following properties are technical attributes of the interface that D+H manages and maintains. Some, but not all, are exposed to the user interface. Most of these attributes are for informative purposes.

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Note: The only attributes that are open to GPP users are the Interface status and the interface connection point.

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### 2.1 Descriptive Attributes

- **Interface Type:** A type of an interface. For example: POSTING, OFAC, SWIFT
- **Office:** The relevant office for the interface definition

### 2.2 Interface Behavioral Attributes

- **Request Direction:** 'I' for Incoming, 'O' for outgoing. For more details, see [Common Language](#).
- **Interface Status:** Possible values are: **ACTIVE** or **NOT\_ACTIVE**. The default is ACTIVE. Usually, it is set to NOT\_ACTIVE automatically, when GPP identifies that there is a problem in communicating with the interface. Setting an interface type to be active again is done manually by a GPP user through the UI (User interface - [Interface Profile](#)) to the interface type metadata.
- **Stop After Conn Exception:** Number of consecutive request transmission exceptions after which the interface is marked as inactive. Currently, there is no mechanism to automatically re-activate interfaces. Manual handling is required by a GPP user to make an interface active again.

Examples of request transmission exceptions that will increase the count:

- For asynchronous interfaces: MQ is down, overflowing queue depth
- For synchronous interfaces: Web service returns a SOAP exception, communication error when trying to connect to web service end point
- **Not Active Behavior (Contingency Mode):** Defines the behavior of an interface flow and message when an interface is inactive. Relevant for an asynchronous model.

Only one inactive behavior type can be applied per interface. The possible values are:

- **STOP\_UNTIL\_ACTIVE:** Do not create a request, stop the flow, and change the payment message status as defined in the '**Message Stop Status**.' When the interface is manually re-activated, the system creates the request, sends it and continues with the flow. An example would be 'Account Lookup' for posting interface.
- **STORE:** Creates the request and saves it (MESSAGE\_EXTERNAL\_INTERACTION table), payment message continues with the flow. When the interface is manually re-activated, the system sends the request. An example might be 'Stop Posting' for the posting interface.
- **SKIP:** Payment message continues with the flow and system does not create or send a request. An example might be 'Sanctions Checking' for posting interface.
- **PERMANENT\_STOP:** Stop the flow and change the message status as defined in the '**Message Stop Status**', no request is created. The system does not create the request even when the interface is re-activated.
- **Message Stop Status:** Status in which the message parks when 'Not Active Behavior' of an interface is defined as 'STOP%'. Possible behaviors are:
  - **Waiting:** Relevant only for asynchronous model. Park message in a **Wait** status

- Not waiting: Relevant only for synchronous model. Does not change message status, just flags with a **Monitor** field
- **Message Wait Status:** Relevant for an asynchronous model. The status in which the message is parked while waiting for the response. As a convention, the **Monitor** field related to the interface is set to 'W'.
- **Interface Monitor Index:** Indicates monitor name (if applicable). This monitor defines the interface status per payment message.

Examples of possible monitor values:

- H: Hold (i.e. when Not Active Behavior is set to 'STOP')
- W: Wait (i.e. when Not Active Behavior is set to '[STORE](#)')
- S: Skipped (i.e. when Not Active Behavior is set to '[SKIP](#)')
- P: Processed

### 2.2.1 Mass Payments Constraints Regarding Interface Properties

For interfaces invoked in Mass Processing module, 'pre-processing' flow, asynchronous model is not supported. Therefore, Not Active Behavior/Wait Behavior, as described above in the [Interface Behavioral Attributes](#), as described in Section 2.2, are not supported.

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Note: For Mass Processing module, 'pre-processing' flow the 'Not Active Behavior' is not derived from the set up in INTERFACE\_TYPES, and is detailed in [Error! Reference source not found.](#)

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## 2.3 Request and Response Attributes

- **Request/Response Protocols:** Transport protocol for the request/response. The available values are:
    - MQ: MQ through JMS
      - Support to BACKOUT queues upon failures.
      - Depending upon load on particular channel, number of listeners can be configured.
    - WEB\_SERVICE: SOAP over HTTP
      - Support for Soap 1.1 and Soap 1.2.
      - Supports security from server side as well as from client side.
- Supports WS-Security
- SOAP\_JMS: SOAP over JMS
  - FILE: File drop
  - MQFTE<sup>1</sup>: File transfer over MQ
  - Email: Message with String attachment
  - SFTP<sup>2</sup>: Secure File Transfer

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<sup>1</sup> MQFTE server is required at bank side

<sup>2</sup> SFTP server is required at bank side

- Request/Response Connections Point: Additional data regarding the transport protocol for the request/response. The actual connection point to the external systems GPP interacts with. The available values are:
  - JNDI name for the JMS resource (for MQ or SOAP \_JMS)
  - Queue name (for MQ)
  - Web service end point (for WEB\_SERVICE and SOAP \_JMS)
  - Folder path (for FILE or SFTP)
- Request/Response Format Type: Defines the format of the request/response object. The available values<sup>3</sup> are:
  - FULL: D+H proprietary message (all available information about a message within GPP is sent out in the request)
  - A subset of D+H proprietary message (only part of the information available about a message within GPP is sent out in the request)
  - PROPRIETRY: A proprietary structure defined for a specific customer .This object is created by mapping from D+H internal proprietary message into the customer specific proprietary structured (handled by code)

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<sup>3</sup> The value is used as a key to XML\_FORMAT\_TYPE\_RELATIONS table where the actual items contained in this format are specified



### 3 Reference Data

#### 3.1 Interface Profile

The **Interface** profile in the user interface specifies, for example, the inactivity status, where payments are parked if the service is inactive, and the number of malfunction events that automate the service to **Inactive** status.

Note: The only attributes that are open to GPP users are the interface status and the interface connection point.

The image below shows a sample **Interface** profile.

The screenshot displays the 'Interface Profile' configuration window. At the top, there are navigation buttons 'Prev' and 'Next'. Below them, the 'Office' field is set to '\*\*\*'. The 'Status' is 'AC', and 'Change status' is set to 'NO-none'. The 'As Of' field is empty.

The main content area has two tabs: 'General' (selected) and 'Properties'. Under the 'General' tab, the 'Name' field is 'CT\_CUST\_ACK\_TXN\_PDNG'.

The 'Properties' section includes:
 

- Type:** ACK
- Sub type:** ACK\_PDNG
- Payment source:** (empty field)
- Status:** Active (dropdown menu)
- Direction:** Radio buttons for 'In' and 'Out'.

The 'Queues' section includes:
 

- Inactivity behavior:** Stop (dropdown menu)
- Wait queue:** (empty field)
- Inactive queue:** (empty field)
- Initiate inactive after:** 5 occurrences

The 'Request parameters' section includes:
 

- Protocol:** STORE\_REQUEST (dropdown menu)
- Format type:** ACK\_NOTIFY
- Conn. point:** (empty field)
- Response interface:** (empty field)

The 'Response parameters' section includes:
 

- Protocol:** (empty dropdown menu)
- Format type:** (empty field)
- Conn. point:** (empty field)
- File Timeout Interval:** (empty field)
- Associated service name:** (empty field)

At the bottom, there are buttons for 'More Actions', 'Undo', 'Save', and 'Close'.

## Appendix A: Interfaces Contingency in Mass Processing Module, 'Pre-processing' Flow ('Not Active Behavior')

### File Role Back

For interfaces which are invoked in the Mass Processing module pre-processing stage, when an interface becomes inactive (i.e. number of consecutive exceptions causing the interface to shut down) the following actions are performed by GPP:

- All file related processed data is cleared from the database and cache. (Including the partial data that was successfully processed, if it exists)
- A FILE\_SUMMARY record is committed to the database with status 'FileRolled'
- The duplicate index of the rolled file is changed as the file was not processed in GPP
- An error is written to the error log indicating the inactive interface/s names that caused the file to roll back

### Corrective Action

Once the issue causing the interface failure is resolved, the user can manually reactivate the interface, as described in [Interface Behavioral Attributes](#).

The corrective actions that are available for files with the 'FileRolled' status in file Summary are:

- **Cancel** – Cancelling the file
- **FileReplay** – Reprocessing the file (GPP copies it from the 'Archive' to the original folder), as a result:
  - The rolled FILE\_SUMMARY entry status changes to **FileReplayed** (Final status)
  - The copied file starts processing, a new FILE\_SUMMARY entry is created with a new internal file ID and its status is according to the processing result (i.e. File distributed, File Complete)