LH Open API
LHAPI Booking API Mock Services Functionality

Partner Sandbox API

Confidentiality Level: LH & MT

Preliminary Note

Revision History

Rev.	Date	Modified by	Note
0.1	2018-08-10	Naveen Kumar M	
1.0	2018-08-22	Ananda Reddy	Final Review & Updates

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1 Introduction

This document provides the booking functionality mockup services before any partner establish contract with Lufthansa OpenAPI. Functionality it helps developers to explore on booking functionality to limit for certain ONDs, dates, markets to smoothly test the booking functionality. The booking requires fares which can be reused from the existing fares for the given market. This mock service limits to UK Market only. The mock services will support different dates with fixed ONDs, flight numbers, economy, return journey only.

1.1 Booking functionality testing flow

Please follow the below sequence of steps to achieve the successful booking (create PNR).

1.1.1 Authentication for Air Booking Partner data

Please follow API token section to invoke all the fares & booking APIs.

1.1.2 Retrieve Fares

Please retrieve the AllFares: or LowestFares: for given point of sale locations before going with Booking flows/API. *Please strictly follow the below sequence of steps to create bookings.*

1.1.3 PnrLessPricing - Initial

Create PnrLessPricing with the help of fares search engine output by using OND, flight number, cabin class, travel date and time before retrieving the pnrLessPricing initial API. This call will retrieve the lowest fares for the given OND, flight travel dates based on number of passengers with passenger types (ADT, CHD, INF), surcharges, taxes etc. Please refer to PnrLessPricing – Initial full functionality for API usage

1.1.4 Create Payment Token (this token remains same for next two steps).

PnrLesspricing has an additional call including payment token billing address. Thus, payment token generation using credit card/debit card call is required to include in the pnrLessPricing confirmation booking request with same token (step 3). Please refer to the Create Payment Token for API usage.

1.1.5 PnrLessPricing - OPC (Second).

This request is same as PNRLessPricing - Initial. Additionally, it requires the payment token (credit or debit card) & billing address (this is part of OPC2.0 regulations). The response to this call remains same as PnrLessPricing Initial call (step 1). Please check the fare conditions and fare information from pnrLessPricing price check OPC response before booking (Next endpoint call) confirmation call and refer to PnrLessPricing – Second for API usage.

1.1.6 Booking - PNR creation.

Create Booking/PNR by using the PnrLessPricing response data. Please refer to Booking – PNR Creation. Post creation of booking any further modification changes, tickets etc must contact lh.com/lufthansa.com online website / customer care.

1.2 LH Partner Sandbox IO Docs

LH Partner Sandbox provides mock services where user can get overview of services by testing them.

Below are the current services available in LH Partner Sandbox IO Docs.

LH Partner Sandbox ▼

OAuth 2.0 Flow:	Client Credentials ▾
Existing Client Credentials:	Manual Input ▾

Client ID:	
Client Secret:	Get Access Token

Toggle All Endpoints | Toggle All Methods

offers   List Methods | Expand Methods

GET AllFares   /offers/fares/allfares

GET LowestFares   /offers/fares/lowestfares

paymentToken   List Methods | Expand Methods

POST payment Token   /sales/bookings/token

Bookings   List Methods | Expand Methods

POST pnrlesspricing   /sales/bookings/pnrlesspricing

POST book   /sales/bookings/book

1.3   Pre-Conditions

Following are the pre-conditions before using the services. Please follow the below guide lines to test the booking functionality.

1. Offers/fares - supports allfares & lowest fares. Use one of the endpoint to retrieve the fares & OND. Currently supported OND: LHR to FRA with flight numbers: LH923 (outbound) & LH900 (return), travel dates from today onwards.
2. Support Single outbound & return SEGMENT (../itineraryList/itinerary/segmentList/airSegment) from LHR to FRA with ECONOMY (for pnrLessPricing request: pnrLessPricingRequest/requestedCabinClass/@id and for book request: bookingRequest/itineraryList/itinerary/segmentList/airSegment/cabinClass/@id) cabin class and RETURN journey.
3. Passenger (../passengerList) count should be greater than one and supports only for single ADULT or two ADULTs, one CHILD and one INFANT.
4. "GB" point of sale (../generalData/genericOptions/genericOption name and value pair) for UK market.
5. "LH" marketing airline/Operating Airline (../itineraryList/itinerary/segmentList/airSegment/marketingAirline in all segments).

Please retrieve the fares for given point of sale locations before invoking Booking API. allfares and lowestfares are available in partner sandbox IO Docs. And anyone can be used to get fares details. Get the fare details for onward flight 923 and return flight 900.

1.3.1   API token

As with the public data LH Open API uses Oauth 2.0 to create end point tokens that are only valid for 24h.

Only difference between the two plans is the URI!

Request URI

Code snippet: Call

```
POST https://api-sandbox.lufthansa.com/v1/partners/oauth/token
Content-Type: application/x-www-form-urlencoded
```

POST Parameter	Value
client_id	*Your client application key*
client_secret	*Your client secret*
grant_type	"client_credentials"

Request Example
Code snippet: Curl

```
curl "https://api-sandbox.lufthansa.com/v1/partners/oauth/token" -X POST -d "client_id=2
8fu8yg7tx35qkqnc6jg96fy" -d "client_secret=6jc9Zj9PE2" -d "grant_type=client_credentials
"
```

Response Structure Definition:

Key	Description
access_token	Your new access token
token_type	We only use bearer tokens
expires_in	The number of seconds until this token expires

Response Example
Code snippet: Json

```
{"access_token":"d8bmzggu72dy69tzkffe6vaa","token_type":"bearer","expires_in":21600}
```

Note that we respond with token_type "bearer" (lower case b) yet when you send us a token it must be named "Bearer" (upper case B). This is a known issue that we are working to resolve.

You can also generate a token via our API Playground page.

1.3.2 AllFares:

Retrieve allfares for below request details,
1. LHR to FRA
2. Economy cabin class
3. Departure date and Return Date should be current or future date.
4. Return date always should be greater than the Departure date.
5. Traveler should be one adult or two adults, one child and one infant.

Below are the request and responses for request with,
1. One adult
2. Two adults, one child and one infant

Request with ADT=1:

```
GET https://api-sandbox.lufthansa.com/v1/partners/oauth/token https://api-sandbox.luftha
nsa.com/v1/offers/fares/allfares?catalogues=LH&origin=LHR&destination=FRA&travel-date=20
18-10-15&return-date=2018-10-30&cabin-class=economy&travelers=%28adult%3D1%29
Content-Type: application/xml or application/json
Accept: application/xml or application/json
```

Response:

AllFaresADT1.txt

Request with ADT=2;CHD=1;INF=1:

```
GET https://api-sandbox.lufthansa.com/v1/offers/fares/allfares?catalogues=LH&origin=LHR&
destination=FRA&travel-date=2018-10-15&return-date=2018-10-30&cabin-class=economy&travel
ers=%28adult%3D2%3Bchild%3D1%3Binfant%3D1%29
Content-Type: application/xml or application/json
Accept: application/xml or application/json
```

Response:

AllFaresADT2CHD1IN
F1.txt

1.3.3   LowestFares:

Retrieve lowestfares for below request details,
- LHR to FRA
- Economy cabin class
- Departure date and Return Date should be current or future date.
- Return date always should be greater than the Departure date.
- Single adult (adult=1)/ two adults, one child and one infant (adult=2,child=1,infant=1).

Below are the request and responses to support:
1. One adult
2. Two adults, one child and one infant

Request with ADT=1:

```
GET https://api-sandbox.lufthansa.com/v1/offers/fares/lowestfares?catalogues=LH&origin=L
HR&destination=FRA&travel-date=2018-10-15&return-date=2018-10-30&cabin-class=economy&tra
velers=%28adult%3D1%29
Content-Type: application/xml or application/json
Accept: application/xml or application/json
```

Response:

LowestFaresADT1.txt

Request with ADT=2;CHD=1;INF=1:

```
GET https://api-sandbox.lufthansa.com/v1/offers/fares/lowestfares?catalogues=LH&origin=L
HR&destination=FRA&travel-date=2018-10-15&return-date=2018-10-30&cabin-class=economy&tra
velers=%28adult%3D2%3Bchild%3D1%3Binfant%3D1%29
Content-Type: application/xml or application/json
Accept: application/xml or application/json
```

Response:

LowestFaresADT2CH D1INF1.txt

Below are the fares error codes and messages expected in case of any failures.

Error Codes	Error Text
1900	Unable to access service.
2921	One or more of the requested carrier catalogues not supported. (semantically incorrect)
2928	Invalid traveler type. (formally incorrect) valid types: adult, child, infant
2929	No valid traveler type. (formally incorrect)
2930	Invalid number of travelers. (formally incorrect) max number = 9
2931	Mandatory travel-date missing. (semantically incorrect)
2932	Trip duration parameter has invalid value. (formally incorrect)
2936	Invalid travel or return date in segment. (formally incorrect) correct format: yyyy-MM-dd
2937	Invalid destination airport code. (formally incorrect)
2938	Invalid origin airport code. (formally incorrect)
2939	Mandatory catalog missing. (semantically incorrect)
2940	Fare family invalid. (semantically incorrect) valid family families: smart, best, smartflex, bestflex
2941	Invalid range allowed values are byMonth/byDay. (semantically incorrect)
2942	Invalid cabin class for catalogue. (formally incorrect)Â
2943	Same traveler type requested more than once. (semantically incorrect)
2944	Number of travelers is zero for all types of travelers. (semantically incorrect)
2946	Exactly one travel date must be placed in requests. (semantically incorrect)
2947	Mandatory range query parameter is missing. (semantically incorrect) ex: range byday or range bymonth
2948	Exactly one segment requests is allowed. (semantically incorrect) Example: /fares?catalogues
2949	Only one fare family allowed. (semantically incorrect)
2950	only return trip supported for LH,OS,LX catalog requests. Both one-way & return trip supported for 4U or EW. (semantically incorrect)
2959	Mandatory tripDuration query parameter missing. (semantically incorrect) eg : tripDuration = 5
2960	Mandatory origin, destination, tripDuration, cabinClass, email or language missing. (semantically incorrect)
2964	Invalid country. (formally incorrect)
2966	Invalid travel-date. (formally incorrect) correct format: yyyy-MM-dd
2967	Invalid travel date. (semantically incorrect)
2968	Invalid return date. (semantically incorrect)
2969	Invalid destination code. (semantically incorrect)
2972	Invalid origin code, invalid City Code or IATA/airport code. eg : LHR.
2973	Invalid destination code, Invalid city code or IATA/Airport code eg : FRA.
2974	Origin must be an Airport code. eg : LHR
2975	Destination must be an Airport code. eg : FRA
3901	Requested fares resource not available due to error at backend.
3902	Requested fares resource not available due to error when processing.

3903	Requested fares resource not available due to no Database connection available.
3904	Requested fares resource not available for given input parameters.
2922	More than one catalog requested, but only one per request is allowed. (semantically incorrect)
2923	Mandatory carriers missing. (semantically incorrect) Example: /fares?segments
2924	Invalid carrier code. (formally incorrect)
2925	Invalid response type. (formally incorrect)
2926	Same response type requested more than once. (semantically incorrect) Example: /fares?segments
2933	Mandatory segments missing. (semantically incorrect) Example: /fares?segments
2934	Mandatory origin, destination missing. (semantically incorrect)
2935	Invalid segment parameter. (formally incorrect)
2951	Either airport code or name must be specified not both. (semantically incorrect)
2952	Airport name is not supported for this request type. (semantically incorrect) Â

1.3.4   PnrLessPricing – Initial

This is the first call in booking service. Create PnrLessPricing with the help of fares search engine output by using OND (LHR to FRA), flight number (923- Onward, 900-Return), cabin class (Economy), travel date and time before retrieving the pnrLessPricing initial API. This call will retrieve the lowest fares for the given OND, flight travel dates based on number of passengers with passenger types (ADT, CHD, INF), surcharges, taxes etc.

Below are the sample requests and response.

Request URL:

```
POST https://api-sandbox.lufthansa.com/v1/sales/bookings/pnrlesspricing
Content-Type: application/xml
Accept: application/xml
```

Request body with single ADULT and corresponding response:

TC1-PnrLessPricing-In
itialPriceCheck-Reques

TC1-PnrLessPricing-In
itialPriceCheck-Respo

Request body with two ADULT, one CHILD and one INFANT and corresponding response:

TC3-PnrLessPricing-In
itialPriceCheck-Reques

TC3-PnrLessPricing-In
itialPriceCheck-Respo

Refer samples and swagger file section for sample error requests and corresponding response.
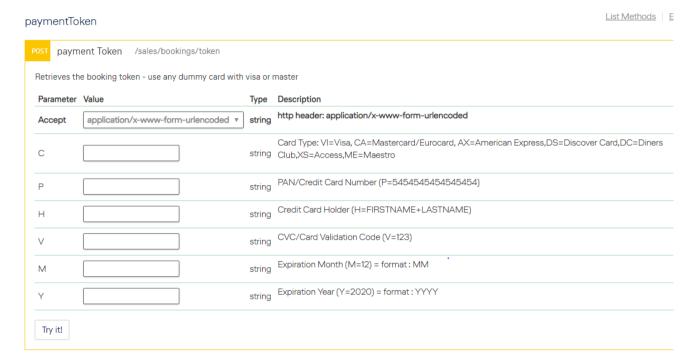
1.3.5   Create Payment Token

PnrLesspricing has an additional call including payment token billing address. Thus, payment token generation using credit card/debit card call is required to include in the pnrLessPricing confirmation booking request with same token. This token remains same for next two steps.

Below are the sample requests and response.

Request URL:

```
POST https://api-sandbox.lufthansa.com/v1/sales/bookings/token
Content-Type: application/x-www-form-urlencoded
```

paymentToken   List Methods | E

POST payment Token   /sales/bookings/token

Retrieves the booking token - use any dummy card with visa or master

Parameter	Value	Type	Description
Accept	application/x-www-form-urlencoded ▾	string	http header: application/x-www-form-urlencoded
C		string	Card Type: VI=Visa, CA=Mastercard/Eurocard, AX=American Express,DS=Discover Card,DC=Diners Club,XS=Access,ME=Maestro
P		string	PAN/Credit Card Number (P=5454545454545454)
H		string	Credit Card Holder (H=FIRSTNAME+LASTNAME)
V		string	CVC/Card Validation Code (V=123)
M		string	Expiration Month (M=12) = format : MM
Y		string	Expiration Year (Y=2020) = format : YYYY

Try it!

Response String:

6G3L9I9UXXXXXXXXXX3R3T6S3V8M8J7X

1.3.6   PnrLessPricing – Second

This request is same as PNRLessPricing - Initial. Additionally, it requires the payment token (credit or debit card. In request xml it should be passed in pnrLessPricingRequest/creditCardToken/@value. Refer below mentioned samples to include credit card token in request) & billing address (This is part of OPC2.0 regulations and should be passed in pnrLessPricingRequest/generalData/genericOptions. Refer below mentioned samples include generic options). The response to this call remains same as PnrLessPricing Initial call. Please check the fare conditions and fare information from pnrLessPricing price check OPC response before booking confirmation call.

Request URL:

```
POST https://api-sandbox.lufthansa.com/v1/sales/bookings/pnrlesspricing
Content-Type: application/xml
Accept: application/xml
```

Request body with one ADULT and corresponding response:

TC1-PnrLessPricing-S
econdPriceCheck-Req

TC1-PnrLessPricing-S
econdPriceCheck-Res

Request body with two ADULT, one CHILD and one INFANT and corresponding response:

TC3-PnrLessPricing-S
econdPriceCheck-Req

TC3-PnrLessPricing-S
econdPriceCheck-Res

Refer samples and swagger file section for sample error requests and corresponding response.

1.3.7   Booking – PNR Creation

Create Booking/PNR by using the PnrLessPricing response data. Booking request to create PNR based on the pnrLessPricing response for a give fares with taxes. And the payment token (In request xml it should be passed in bookingRequest/payment/creditCard/token/@value. Refer below mentioned samples to include credit card token in request) should be included in request.

Request URL:

```
POST https://api-sandbox.lufthansa.com/v1/sales/bookings/book
Content-Type: application/xml
Accept: application/xml
```

Request body with one ADULT and corresponding response:

TC1-Booking-Request
.xml

TC1-Booking-Respon
se.xml

Request body with two ADULT, one CHILD and one INFANT and corresponding response:

TC3-Booking-Request
.xml

TC3-Booking-Respon
se.xml

Refer samples and swagger file section for sample error requests and corresponding response.

Below are the error codes and messages available in application.

Error Code	Description	Http Status Code
6077	Service Unavailable. Please contact the api support or administrator.	503
6080	Provide SessionID(Maintain UniqueID for the entire Workflow) : {bookingRequest/generalData/clientInfo/sessionId}	400
6090	This mock service supports only for:	404

	1. Single SEGMENT(../itineraryList/itinerary/segmentList/airSegment) from LHR to FRA with ECONOMY(for pnr request: pnrLessPricingRequest/requestedCabinClass/@id and for book request: bookingRequest/itineraryList/itinerary/segmentList/airSegment/cabinClass/@id) cabin class and RETURN journey. 2. Passenger (../passengerList) count should be greater than one and supports only for single ADULT or two ADULTs, one CHILD and one INFANT. 3. GB point of sale (../generalData/genericOptions/genericOption name and value pair) for UK market. 4. LH marketing airline/Operating Airline(../itineraryList/itinerary/segmentList/airSegment/marketingAirline in all segments).	
6091	Departure date(../itineraryList/itinerary/segmentList/airSegment/departureDate in all segments) should be current date or future date.	400
6092	Passenger count should be greater than one and each child or infant must be accompanied by an adult traveller	400
6093	Service Unavailable. Please contact the api support or administrator.	400
6094	Complete billing address is not available in bookingRequest (bookingRequest/billingAddress). Expecting below elements in billingAddress: emailAddress (bookingRequest/billingAddress/emailAddress) firstName (bookingRequest/billingAddress/firstName) lastName (bookingRequest/billingAddress/lastName) country (bookingRequest/billingAddress/country) zipCode (bookingRequest/billingAddress/zipCode)	400

	city (bookingRequest/billingAddress/city) street (bookingRequest/billingAddress/street) homePhoneNumber (bookingRequest/billingAddress/homePhoneNumber)	
6095	Credit card token value (pnrLessPricingRequest/creditCardToken/@value) is missing in provided request.	400
6096	Credit card token value (bookingRequest/payment/creditCard/token/@value) is missing in provided request.	400
6097	Marketing Airline (../itineraryList/itinerary/segmentList/airSegment/marketingAirline in all segments) is missing in request	400

1.4   Examples and Swagger file

Below are the Examples used for testing the booking functionality (unzip to get sample files) and swagger file.

Reinhard: please upload to Git & share the location to developers

Samples.zip

swagger.json