Information Article

Use of API & PNR Data during *Initial Air Accident Response Operations

(*Particularly with respect to an Accident Airline's '**Passenger Manifest Verification**' Process)

Relevance:

Air carrier (airline etc.) provided 'Advance ***Passenger*** Information' (**API**) and '***Passenger*** Name Record' (**PNR**) type data had been (2024) increasingly required / used by governments etc. world-wide (typically by 'border control' + relevant 'security' type authorities e.g. 'homeland security') - to assist in countering the threat of international ***criminal*** activities - particularly terrorism

As a valuable 'knock-on' effect - other (potential) use of API / PNR data can provide important inputs in the vital task of rapidly / accurately ***identifying air accident victims*** + possibly / indirectly, their (**NOT** having been on board 'the' accident flight) family, relatives and friends worldwide

Proposing to obtain / use ***API*** data for the latter purpose was (as at 2015) a relatively new concept - but seems not to have progressed significantly at time of writing this in 2024?

In contrast, ***PNR*** data for this 'same purpose' had always been possible 'in theory', but its application, 'interpretation' etc. has historically been work intensive / time consuming / non-standardised (for a number of reasons) etc.- and has thus not been used to best advantage (with regard to said purpose)

The gradual increase in PNR data use for ***border control*** / ***security*** etc. purposes has (as at 2024) given rise to a standardised PNR transmission format - thus potentially being better usable to assist in more effective and efficient utilisation of said data - re the ***air accident*** type situation

However, as at early 2024 there had been little progress in advancing the latter (air accident type situation) cause (with same applying to **API** [for similar reasons])

Introduction

This information article has two objectives:

Firstly, to gain an outline (as at early 2024) overview of what is meant (in aviation and other appropriately related contexts e.g. international border control; international security etc.) by the terms '**Advance Passenger Information - API**' and '**Passenger Name Record - PNR**'

Secondly to apply this understanding to the vital task of attempting to ***quickly / accurately identify air accident*** victims (and possibly their '***non-flying***' family, relatives and friends etc. also) - in the context of a ***post-catastrophic aircraft accident type situation*** (+ similar impact aviation crises)

FIRSTLY - API and PNR

Some Historical Background

The following extract from an * ICAO Sep 2013 'working paper' - might serve to set the scene:

* International Civil Aviation Organisation (a body of the United Nations)

*'.....By 2016 airlines will be transporting 800 million more people than they did in 2011, reaching a total of around 3.6 billion passengers. Keeping (country) borders secure while limiting costs of same will thus be a growing challenge. To do this (to assist in meeting this challenge), more and more States (**countries**) are turning to the use of **airline** (and similar) provided **passenger** data e.g. **Advance Passenger Information** (API) data **and** **Passenger Name Record** (PNR) data*

*Relevant and specific use of API and PNR **data** can provide an efficient / effective way to acquire and **pre**-assess airline traveller info for immigration, customs, security purposes etc, **but** involves source systems which are typically in use / ownership by / of ** airlines (and / or airline associated entities such as Amadeus, Sabre, SITA, Travelport [Galileo and Worldspan] etc.)*

*The **International Air Transport Association** (IATA) and its member airlines understand the need for electronic transmission of such data to States (countries), in order to expedite passenger flows and to also meet legitimate border control / other security needs - and have been cooperating for many years with said States' 'public authorities' worldwide accordingly*

** Traditionally, such airline 'systems' comprise a 'Computer Reservation System - **CRS**' and / or a 'Departure Control System - **DCS**'. (See also the associated system known as GDS [global distribution system])

The latter (systems) have historically ***not*** been easily compatible with the data receiving systems in use by immigration, customs, security etc. services around the world - without significant and costly adaptation - which had already raised the question 'who will pay for all of this?'

Much work had been accomplished on this (and associated matters) to date (2015) - by both government organisations and the aviation industry - with much more still to come. ICAO and WCO have been and still are also very significantly involved (see next paragraph)

Co-operation between ICAO, World Customs Organisation (WCO) and IATA has helped achieve a strong global framework for such (API and PNR) data transmission. A number of dedicated 'Standards and Recommended Practices' now (2015) exist in 'ICAO Annex 9 - Facilitation', as well as solid and extensive guidelines for API and PNR data transmission

*In 2015 * 49 **countries** required / used API data and 10 more had similar requests in the pipeline*

16 ***countries** required access to and use of PNR data, with another 29 due to follow suit. Unfortunately, the associated requirements in many of these countries do not comply with international Standards and Guidelines as used in the aviation industry*

* Believed to be around 60 countries for API in 2016 and increasing rapidly. Similarly, the number of countries requesting PNR data has also increased significantly from the figures given above e.g. ***all*** EU (***European Union***) countries are expected to require airline provided PNR data from early 2016 (over and above those small number of EU countries which unilaterally[as at mid-2015] already did so)

See also 2024 update on next page

***Non-standard** passenger data requirements can affect (adversely impact upon) all parties. For States (countries) requiring passenger data, **non**-standard requests often lead to delays in compliance by the (aviation) industry - and / or to actual flight delays when non-standard information must be manually captured*

For airlines, non-standard requests consume unnecessary time and resources, as available data needs to be modified to new systems and individual authorities' needs. Furthermore, airlines become 'liable' when complying with non-standard requests which contradict national laws on data privacy of other States. This in turn affects those States and their citizens……'

Situation as at mid-2015

The significant amount of work already gone into making the transmission of API and PNR data (to States [countries] so requiring same, as already described above) more effective, efficient, expedient and standardised is to be applauded - particularly as it often needs to 'fit around' conflicting State / Country etc. requirements re associated matters - such as personal '***privac**y*', '***data protection***' etc.

For example, the EU (some countries excepted) as an entity had long resisted the *PNR initiative*, using 'individual privacy' and 'data protection' issues as associated mitigations for said resistance

It took the terrorist attacks in Paris in early January 2015 to concentrate EU minds on this matter - and it is likely that it (the EU) will now 'come on board' by the end of 2015 i.e. accede (subject to certain safeguards) to ***all*** EU countries adopting the need to acquire and use **PNR** data for border control / security purposes

As another example, an organisation known as the 'Passenger Name Record Government Working Group - PNRGOV' has been working (with IATA) for some years now on standardising data messaging formats for transmitting PNRs. (For more info re PNRGOV - see pages 18 , 28 / 29)

'**API** Required' **States** (Countries)

It has been problematic to provide an accurate, complete and current list of States (countries) requiring ***API*** information. A 'best guess' for the situation (as at 2015) is shown below:

(If any reader(s) etc. can provide more accurate / current / complete / current data, they are requested to please contact the author accordingly at 'info@aviation-erp.com'. All information gratefully received)

*Advance Passenger Information (**API**) Countries as at mid-2015*

- Algeria
- Angola
- Antigua and Barbuda
- Australia
- Austria
- Bahrain
- Bangladesh
- Barbados
- Bermuda
- Brazil
- Canada
- China
- Costa Rica
- Cyprus
- Czech Republic
- Dominica
- Egypt
- Germany
- Grenada
- Guyana
- India
- Indonesia
- Iran
- Ireland
- Italy
- Jamaica
- Japan
- Kenya
- S Korea
- Kuwait
- Maldives
- Malta
- Mexico
- Morocco
- Netherlands
- New Zealand
- Pakistan

- Qatar
- Romania
- Russian Federation
- S Africa
- St Kitts & Nevis
- St Lucia
- St Vincent & the Grenadines
- Spain
- Sri Lanka
- Switzerland
- Syria
- Tanzania
- Thailand
- Trinidad & Tobago
- Tunisia
- UAE
- Uganda
- UK
- USA + US Territories (both for landing and overflight purposes)
- Zambia

(Early 2024 update. According to *IATA* there were thought to be ***more than 90*** such countries at this time)

'PNR Required' States (Countries) - as at early 2024

It has also been difficult to provide a current list of States (countries) requiring PNR information. (If any reader(s) etc. can provide more accurate / current / complete / current data, they are requested to please contact the author accordingly at 'info@aviation-erp.com'. All information gratefully received)

Information provided via the following links might help to a greater or lesser degree - along with further explanatory information re PNR:

https://www.altexsoft.com/blog/pnr-explained/

https://ec.europa.eu/commission/presscorner/detail/en/mex_23_4362

https://home-affairs.ec.europa.eu/document/download/9ba34b0b-5056-45d8-8945-e3f30640caa7_en?filename=20200724_com-2020-305-review_en.pdf (Note: If this link does not open the required document directly, copy and paste it [the link] into a web browser [e.g. Google; Microsoft Edge etc.] and then click on [activate / open] the link)

https://streamlane.tech/blog/api-pnr-data/what_api-pnr-means_to_flight_operators

https://www.iata.org/en/programs/passenger/passenger-facilitation/passenger-data/

Further note (just below) additional details provided by IATA (date of same not provided / available - but thought to be reasonably 'current' - as at early 2024):

Advance Passenger Information (API)

- Over 90 countries (states) now require airlines to send / transmit relevant API data before an associated flight's arrival. More are planning to introduce similar requirements in the ***near*** future. (API info comprises data [typically full name, date or birth, gender, passport number, country of citizenship, country of passport issuance] found in the Machine Readable Zone [MRZ] of passports and other, relevant travel documents)

  IATA's aim is to ensure that all countries (requiring API-type data) harmonise their requirements with global standards, guidelines etc. (Note: Some countries require information that cannot yet be machine-read)

Passenger Name Records (PNR)

- Access to PNR is 'today' required by 50 countries and growing.

  A PNR contains data provided by a traveller at ***time of booking*** - and is typically 'stored' in an / the associated airlines' etc. reservation system, until check-in. (Note: Most countries now legislate that personal data [including same used etc. as per API and PNR requirements] should only be used for the purposes it was given - unless otherwise specifically 'authorised' by the data subject.

  It [said data] must also only be seen / used by those having a 'legally authorised' requirement need so to do; should not be kept for an excessive amount of time etc.

  Further to the above, governments etc. must reach agreements with each other in order to protect associated citizens' rights, whilst maintaining border integrity, facilitating passenger flow etc. IATA is keen to see a global solution to the growing issue of PNR access

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Use of API & PNR Data during Airline Air Accident (& similar) Crisis Response Ops

Background

The next para below is an extract from Chapter 3 (‘***Types*** of Family Assistance’) of (separate) ICAO publication ***Doc 9973*** - ***‘Manual on Assistance to Aircraft Accident Victims*** (latter [aircraft accident victims] being defined as having been on board the accident flight ***and / or*** those who might be considered as being ‘***ground victims***’ [latter defined as ***not*** having been on board said accident flight]) ***and their*** (non-flying i.e. ***had not on board the accident flight nor can they be classified as ‘ground victims’***) ***Families, Relatives and Friends’***:

‘…… ***Following an aircraft accident, the most immediate form of information required is confirmation of whether or not the person(s)*** *(about whom a particular family member(s) etc. is / are concerned / enquiring about)* ***- was*** *(were)* ***on board said accident aircraft*** ……’

To achieve the above, the ‘accident airline’ needs to corroborate (using the various information sources available) that the ‘official’ * list of passengers on board said accident flight is as accurate and complete as is possible - by attempting to identify and remedy any inaccuracies / deficiencies etc. in said list, insofar as is possible so to do - and considering actual circumstances ‘on the day’

* In ‘aviation’ related terminology a ‘passenger list’ is more commonly known as a ‘passenger ***manifest***’

How this is achieved is commonly known as the ***passenger manifest verification*** *(confirmation / reconciliation)* ***process***

A significant number of information sources might (repeat - might) be available ‘on the day’ when trying to corroborate said passenger list / manifest. However, the ***only*** sources referred to within the scope of ***this*** information article (the document you are reading now) are **API** and **PNR** type data

Note - the quality (‘completeness’, accuracy etc.) of airline passenger manifests varies significantly - from being just about 100% accurate and complete on most occasions at one extreme - to being non-existent at the other. This situation is not expected to change anytime soon! There are many reasons for why this is so - but same are beyond the scope of ***this*** information article

Passenger Manifest Verification (PMV-1)

Use of API Data

Note: At the risk of ‘stating the obvious’, the first thing to ‘take on board’ here is that API data will only be available (for input to the **PMV** process) in circumstances where ‘the’ accident flight was operating a sector on which API data was required and which ***had*** actually been so used, transmitted, stored etc. accordingly

As already documented (and as at early 2024) approximately **90** + of the world’s 193 countries (i.e. less than a half) required API data from airlines carrying passengers (to and / or from their countries). This number might be anticipated to grow (possibly quite quickly) in the relatively near future

The concept and application of 'Advance Passenger Information (API)' has been around for some time - but has latterly become increasingly relevant and useful in the 'fight against crime', particularly terrorism - and typically in the context of border control and similar (immigration and customs etc.) including what might be generically termed 'homeland security'

A consequential 'spin-off' of the latter is that the very same information can also be used by airlines - to assist in the identification of air accident victims and, in certain jurisdictions (e.g. the USA), possibly also the details of e.g. an 'emergency contact person(s)' - as might have been pre-nominated by a victim - i.e. at some point prior to the departure of the accident flight

Perhaps the best way of demonstrating how such information is collected by an air carrier might be to look at an *example* of an 'API required' 2015 information webpage belonging to a de-identified but real, (scheduled / passenger) international airline:

Example

'.....ABCX Airways (de-identified airline)

What is Advance Passenger Information (API)?

In order to enhance safety and security, the border control (immigration and similar) authorities of many countries require airlines to provide passenger passport (and possibly additional) information, ***prior to*** departure of any inbound or outbound flights to / from such countries. API data is required in addition to any Visa and similar travel related requirements

Currently these countries include:

List of 'API required' countries on the ABCX Airways flight network to be documented here

(Be aware that the following information is subject to change at any time)

Required passenger information for all API countries is as follows (note that ***additional*** information requirements vary by country):

- Full name
- Passport number, issuing country and expiration date
- Gender

- Date of birth
- Nationality

If travelling to the ***United States of America***, the following, ***additional*** API details are required

For Permanent Resident Card Holders only:

Permanent Residence Card number

For non-US Citizens without a Permanent Residence Card:

a) Country of residence

b) Destination address in the USA, including street, city, state and zip code. If you are staying at a hotel, provide the complete hotel name as well as the street, city, state and zip code

Example:

Address: Downtown Hilton Hotel - (be as specific as possible)
City: Houston; State: Texas; ZIP Code: 99999

If you are not sure of the correct ZIP Code, you may enter 99999

If you are transferring to a cruise ship on the day you arrive in the USA, provide the name of the cruise ship and your port of embarkation. Example:

Address: Transit to MV Princess of the Seas
City: New York; State: New York; ZIP Code: 99999

If you are planning to pick up a rental car and if the address of the first night stay is not known, you may provide the general itinerary. Example:

Address: Touring the Grand Canyon area
City: Grand Canyon; State: Arizona; ZIP Code: 99999

If you are returning on the same day, provide the address of a location where you will be spending time during your visit to the USA

If you are transferring to another flight in the USA (which travels outside of the USA) - and such flight is scheduled to depart later than eight hours *after* your scheduled flight arrival time in the USA - provide your departure flight number and departure airport name and address

If you do not have an address for the first night in the USA, provide information about where you expect to be staying in as much detail as possible

If you are travelling with children and infants, you must provide a US address for each of them

c) Name and telephone number of a contact person in the USA

Passengers who refuse to supply the above information prior to travel will not be allowed entry to the USA and will consequently not be accepted for travel at check-in

It is important that the information provided is accurate / correct so as to avoid airport delays, both on departure and arrival into the USA. US Citizens, Legal Permanent Residents (LPRs), transit passengers and departing passengers are exempt from the U.S. address requirement

In addition to the API requirements above, *the USA requires 'your' next of kin contact details - in case of an emergency*. This will include the latter person's name and telephone number

Note - the author of this information article (the one you are reading now) believes (possibly incorrectly) that the information documented immediately above regarding 'next of kin contact details' is an advisory requirement only, in that the question is asked (typically by the carrying airline) - but that the information need not be provided if the passenger so declines. A further variation of this is that it is mandatory for ***US citizens only*** to provide this 'next of kin' information - with other passengers having the choice ***not*** so to do

Readers who can provide more definitive information on this matter are requested to please contact (email at: 'info@aviation-erp.com') the author accordingly (providing 'official' references where possible)

End of Example

By default, API data will be held in one or both of an airline's Computer Reservation System (CRS) and Departure Control System (DCS) - or equivalent system(s) e.g. GDS

Consequently, it will be relatively simple and quick for an airline to make such information available to its own emergency response team(s) following e.g. a catastrophic aircraft accident involving that same airline. This team(s) can then use said API info to provide an input into its passenger manifest verification process (and other associated requirements) for the accident flight

Some (a small number) of airlines having their own emergency response management 'systems', simply need to enter flight number and date into such system to obtain (download) just about everything held by the airline concerning the accident flight - including API (***and*** PNR) data i.e. it can all be available within literally seconds of the airline learning about the accident

From an airline emergency response planning viewpoint, it is a pity that only the USA (as at *2015) seemed to also mandate for ***additional*** information to be required when collecting associated (pre-departure) API data - as shown in the example further above

* The 'interested reader should check (when reading this) that the above is still the current situation. This is because such provision of 'next of kin' / equivalent details would be of particular value to the accident airline, to accident victims - and to (non-flying [i.e. not on accident flight]) family, relatives & friends of all such victims

Passenger Manifest Verification (PMV-2)

Use of PNR Data

Introduction

Passenger Name Record (PNR) data is the generic term given to electronic records created by the aviation and travel industry (travel agents etc.) each time a passenger books (reserves) and / or buys an * air ticket

* Note - PNRs can also be used to record flight-related information e.g. car-hire, hotel bookings etc.

PNRs typically contain information provided by the passenger, by the airline, by the travel agent, by the tour operator, by other appropriate persons etc. - which is used (operationally & commercially) by the different parties involved, to facilitate the passenger's travel; for record keeping purposes etc.

The intent of a PNR as originally conceived (and so used until relatively recently) was ***not*** to facilitate border control and security. However, PNR information today may include elements which require reporting as part of API

Passengers are able to make flight bookings / reservations in various ways, most commonly through direct contact with the air carrier via its website and / or via its telephone reservations centre and / or via travel agents etc. A passenger or a travel agent may make a reservation for a flight even if a (required) visa, travel authorisation (including via API) is still to be submitted

PNRs may be created from one year maximum before intended departure date - up to and including the day of departure itself (i.e. for immediate travel). Information contained within the PNR may change between time of creation and time of travel

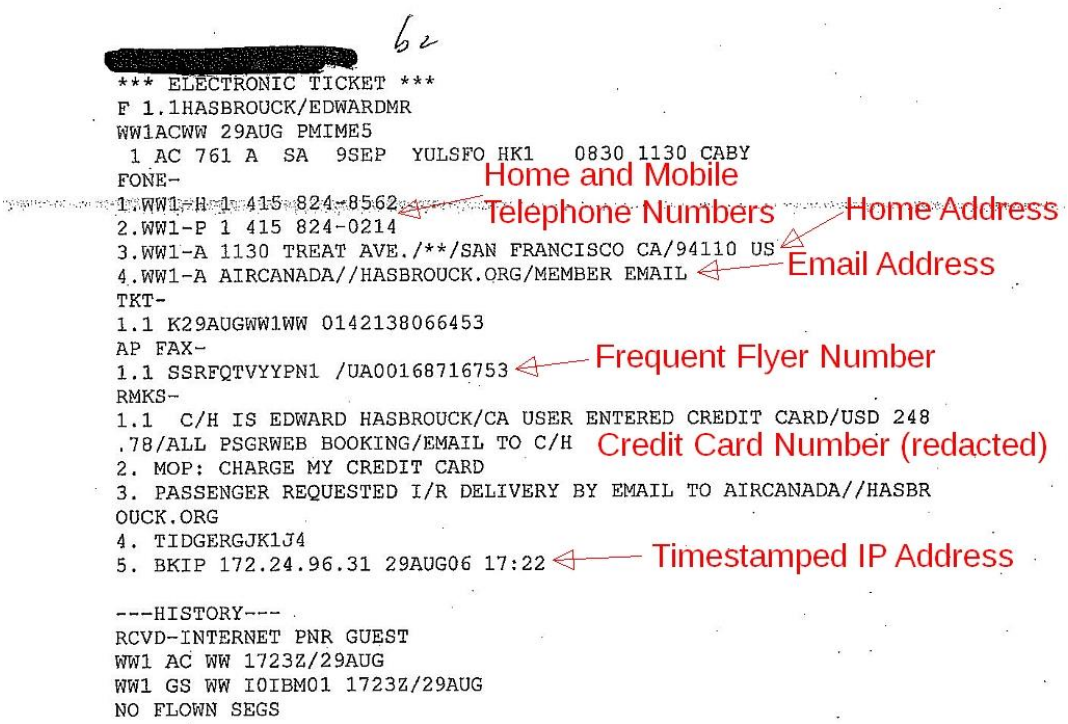
The amount and the nature of the information in a PNR can vary from airline to airline, travel agent to travel agent and even passenger to passenger e.g. a PNR ***may contain as little information as a name - or may contain e.g. full address, contact details, credit card information and other significant data pertaining to the booking***

The ***basic*** information provided in PNR ***may*** include any / all of: (for full details see page 15)

- PNR Locator Code (Booking reference number & other, similar terminology)
- Passenger name (first, last and gender)
- Details of intended travel itinerary
- Method of payment, which may include (partially masked) credit card & similar information
- Special Service Requests (SSR) such as preferred seating, assistance for persons with reduced mobility, meal requests for children / infants etc.
- Frequent flyer / traveller (loyalty scheme) number / reference
- Travel document information, which may include biographic information, as part of the obligation for airlines to provide API information to the border authorities in countries of departure and / or destination
- Additional remarks or comments (if any)

An example of a 'real' PNR (with explanatory annotations included [which would not appear on the original PNR of course]) is shown below:

Example - PNR



*Using PNR Data in the Passenger Manifest Verification (**PMV**) Process*

PNR data is potentially of considerable value to the PMV process. However, it has historically not been effectively exploited by airlines (as part of their **emergency response** [**aircraft accident** etc.] **planning efforts**) - as info shown in PNRs (in practical 'day to day' use) can be somewhat haphazard / non-standard etc. - and may thus be difficult to interpret / understand by most airline (and airport, GHA etc.) emergency responders

However, one airline (for which the author of ***this*** info article was the 'emergency planning manager' at the time) addressed this problem by planning to use a team of its reservations staff (PNR experts) to 'decode / translate' PNRs (into plain language) for passengers on an accident flight. The resulting plain language 'translation' would then have been fed directly to the associated airline team undertaking the PMV process

The main problem here would be the time factor involved - e.g. imaging decoding 600+ PNRs for a full, hi-density seating Airbus A-380! Nevertheless it **MUST** still be done / achieved - due the potential importance of such data to the PMV process

As mentioned, a major problem here is lack of consistency / standardisation of PNR data as used by the various data 'inputters' around the world - whether they be aviation and / or other travel industry related staff (such as travel agents). As noted further above, a PNR can contain as little as just a name

Some improvement to the above situation eventuated in relatively recent times due the requirements (for border control and security / anti-crime purposes etc.) of an increasingly large number of countries to be provided with PNR data

In order to accomplish this it has been necessary to (try to) standardise the PNR message transmission format - with the aim of improving (to a degree) the time factor issues associated with decoding the PNR into the plain language formats typically required by airline and other, relevant emergency responders etc.

Note (for information purposes only)

Law enforcement (Border Force [Customs; Immigration etc.]; Homeland Security etc.) authorities may typically use PNR data in several ways:

- Re-active: Use in investigations, prosecutions, unravelling of networks ***after*** a crime has been committed etc. In order to allow law enforcement authorities to go back sufficiently in time, a commensurate period of retention of the PNR data by law enforcement authorities is necessary
- Real-time: Use ***prior*** to the arrival or departure of passengers in order to prevent a crime, observe / arrest persons before a crime has been committed or because a crime has been or is being committed. In such cases PNR data are necessary for running / checking against pre-determined assessment criteria, in order to identify previously 'unknown' suspects and for running against various databases of persons and objects sought
- Pro-active: use of PNR data for analysis and creation of assessment criteria, which can then be used for a pre-arrival and pre-departure assessment of passengers. In order to carry out such an analysis of relevance for the prevention, detection, investigation and prosecution of terrorist offences and serious crime - a commensurate period of retention of the PNR data by law enforcement authorities is necessary

Extract from ICAO Doc 9944 - Guidelines on Passenger Name Record (PNR) Data 1st Ed 2010

PNR DATA ELEMENTS

An operator's system(s) may include the below following data elements	Component Data Elements
PNR name details	Passenger name, family name, given name/initial, title, other names on PNR
Address details	Contact address, billing address, emergency contact, email address, mailing address, home address, intended address [in State requiring PNR data transfer]
Contact telephone number(s)	[Telephone details]
Any collected API data	Any collected API data, e.g. name on passport, date of birth, sex, nationality, passport number
Frequent flyer information	Frequent flyer account number and elite level status
PNR locator code	File locater number, booking reference and reservation tracking number
Number of passengers on PNR	[Number]
Passenger travel status	Standby information
All date information	PNR creation date, booking date, reservation date, departure date, arrival date, PNR first travel date, PNR last modification date, ticket issue date, "first intended" travel date, date of first arrival [in State requiring PNR data transfer], late booking date for flight
Split/divided PNR information	Multiple passengers on PNR, other passengers on PNR, other PNR reference, single passenger on booking
All ticketing field information	Date of ticket issue/purchase, selling class of travel, issue city, ticket number, one-way ticket, ticket issue city, automatic fare quote [ATFQ] fields
Data groups or categories	Component data elements
All travel itinerary for PNR	PNR flight itinerary segments/ports, itinerary history, origin city/board point, destination city, active itinerary segments, cancelled segments, layover days, flown segments, flight information, flight departure date, board point, arrival port, open segments, alternate routing unknown [ARNK] segments, non-air segments, inbound flight connection details, on-carriage information, confirmation status

Form of payment (FOP) information	All FOP [cash, electronic, credit card number and expiry date, prepaid ticket advice (PTA), exchange], details of person/agency paying for ticket, staff rebate codes
All check-in information*	Generally available only after flight close-out: check-in security number, check-in agent I.D., check-in time, check-in status, confirmation status, boarding number, boarding indicator, check-in order
All seat information	Seats requested in advance; actual seats only after flight close-out*
All baggage information*	Generally available from DCS only after flight close-out: number of bags, bag tag number(s), weight of bag(s), all pooled baggage information, head of pool, number of bags in pool, bag carrier code, bag status, bag destination/ offload point
Travel agent information	Travel agency details, name, address, contact details, IATA code
Received-from information	Name of person making the booking
Go-show information*	Generally available only after check-in and flight close-out: go-show identifier
No-show information*	Only available after flight close-out: no-show history
General remarks	All information in general remarks section
Free text/code fields in OSI, SSR, SSI, remarks/history	All IATA codes

* These elements are contained in the DCS (Departure Control System [various types] used by airlines, GHAs etc.) and are thus not available prior to an aircraft's departure

A recommendation has been made to the World Customs Organization (WCO) to consider incorporating these elements in future ***API*** messaging. Depending on the airline system these elements may or may not ***be part of a PNR***

Note - for latest information the reader should check for the latest version of the above (2010) document

NOTICE REGARDING PNR DATA

A growing number of States (countries) now require airlines etc. to provide access to their records containing certain travel and reservation information, known as Passenger Name Record (PNR) data. The International Civil Aviation Organization (ICAO) has developed guidelines to help States design their requirements and procedures for handling PNR data

Such PNR data should be used only for purposes such as improving aviation security, enhancing national / border security, preventing & combating terrorism, transnational and organised crime etc.

PNR data may include information about passengers provided during the booking process and / or otherwise held by airlines, travel agents etc. Such data includes credit card details and other similar (private) financial information.

PNR data should be retained by State authorities for no longer than is reasonably necessary for the stated purposes related to their collection and for auditing and redress purposes, in accordance with national laws

Further information about these arrangements, including measures to safeguard your personal data, can be obtained from the relevant national authority and / or your airline, travel agent etc..

— END —

NOTE: The following information (pages xx to yy) has been included herein for information purposes only

Transmission of Advance Passenger Information (API) and Passenger Name Record (PNR) Data

Connectivity Options within the Transport Industry - 27th July 2023 / Neil Walker

Advance Passenger Information (API) is the set of data comprising:

- The details of any particular flight by aircraft operators together with the biographic data of a passenger and / or crew member, as available on his / her travel document. The latter is collected by air carriers during check-in and, after combining with travel route information, transmitted to the border control authorities of the country / countries of destination etc.

  According to IATA over 90 countries (as at 2022) required airlines to send API before an associated flight's arrival at its destination(s). More countries are planning to introduce similar requirements soon

  The provision of API data allows law enforcement agencies etc. to screen passengers' data ***prior to*** arrival, helps to improve border controls and combats illegal immigration - via transmission of the associated data by airlines to a '***Single Window***'

  The *single-window system* is a trade facilitation / concept allowing an international (cross-border) 'trader' (i.e. a relevant airline as used herein) to submit information to a single agency (rather than having to deal with multiple agencies in multiple locations) so as to obtain the necessary papers, permits and clearances necessary to complete their *import / arrival* and *export / departure* processes.

  There is an obvious time saving benefit to the single window system.

A common definition of the term 'single window- is: "A facility which allows parties involved in trade and transport to lodge standardised information and documents with a single entry point to fulfil all import, export and transit-related regulatory requirements. If information is electronic then individual data elements should only be submitted once."

Passenger Name Record (PNR) data - is a generic name given to records created by aircraft operators and / or their authorised agents - for each journey booked by or on behalf of a passenger

PNR data are used by such operators for their own commercial / operational purposes in providing air transportation services. More clearly, PNR relates to travellers' reservation and itinerary data held in the carrier's departure and control reservation systems (DCS) etc.

Analysis of PNR data can assist law enforcement / border control etc. agencies to detect suspicious travel patterns and identify criminals / terrorists etc. - particularly those unknown to such agencies. The core objective is preventing / fighting terrorism, serious crime + drug and human trafficking.

The technology used by participating countries to support the transmission of crew and passenger information by a commercial air carrier and / or commercial service provider is called the 'Data Acquisition Solution'

(Data acquisition is **the process of converting real-world signals to the digital domain for display, storage, and analysis**. As physical phenomena only exists in the analog domain [i.e. the physical world we live in] they must be first measured there and then converted to the digital domain)

Typically, there are two options for commercial air carriers to 'push' (send) passenger data to the 'Single Window'. This could be e.g. via commercial service providers - and / or commercial air carriers transmitting said data directly to the 'Single Window' of the respective law enforcement agency etc.

However, studies indicate that countries implementing API /PNR systems sometimes struggle to choose the correct / relevant / associated 'scenarios'. Thus not knowing the correct / proper etc. regulation of the data transfer procedure, might result in both resource and time loss

Typically again, the root of the latter problem lies in the lack of associated knowledge, skills etc. – combined with insufficient human resources. Thus, countries with limited technical ability, capacity etc. might accept free connection proposals to their system(s) as offered by commercial providers. The latter can thus lead to poor data transmission, 'invisible' financial loss etc.

It is obvious (for various reasons) that not all countries will have the same level of resources / capacity etc. in implementing API / PNR systems - leading to significant differences in the (required) outcomes

This article mainly focuses on the transmission methods of API /PNR data and potential connectivity options for governments. Although, it will provide cost and benefit analysis in implementing and operating passenger data systems. However, the article does not cover technical information related to the data standards

Data Transmission Methods

Effective implementation of API and PNR systems necessitates focusing on the following work streams:

- Legislative framework
- Institutional set-up and operational capacity
- Connectivity options and cooperation with stakeholders
- Technological readiness

As per the last two bullet points above, the arrangement and transmission of high-quality data between air carriers etc. and governments etc. - requires close co-operation to ensure that such collaboration, technical connectivity etc. is 'fit for purpose' in obtaining the required data appropriately, in the required timescale etc. The essential part of this process is to effectively manage the connection between the air transport industry and the 'Single Window'

From this standpoint, the development of API and PNR systems - especially the rules applied in data transmission - is highly dependent on the availability of resources

The issues of data transmission and connection with airlines are the most important stages of the API/PNR implementation process, and the countries' etc. 'readiness' plays a crucial role in obtaining high-quality data in line with international standards

The practical challenges and statistics indicate that governments connecting with airlines are faced with technical and financial issues, including a lack of manpower used in transmitting passenger data. Namely, governments and airlines need to mutually adapt their messaging systems and the private sector cannot always use its resources to fulfil these needs.

There are a number of options for governments etc. to use in collecting such data. The most important is to receive API and PNR data in an agreed, standardised format at the lowest, possible cost. However, this is not that simple

Obviously, if governments are not able to create their own gateways they need to work with the relevant commercial providers in order to finalise any relevant project. In the case of a 1to 1 relationship between airlines and governments etc. - all involved need to consult individually and sign the relevant contracts re data transmission / exchange etc. All aspects of the same - including format, frequency, time, commitments, responsibilities etc. - should be reflected in said contract(s).

The latter / above might be considered as an effective way to avoid misunderstandings, confusion etc. (between the involved parties) during the transmission process.

Additionally, success of the above scenario relates to the concept that a 'responsible' government agency is not obliged to pay any annual service fee to any third parties for said data transmission and automatically eliminates its future dependency as well. However, in order to pursue the first scenario and for it to be successful, associated governments would need the requisite 'high technological' capacities and 'high-calibre' manpower resources

The second scenario in data transmission is about using ***commercial***, service providers or data brokers as, in practice, most airline companies have not been too happy to work directly with governments. The main reason is that airlines need to use their resources for many administrative issues related to technical connections and legal adjustments. Therefore, service providers play a crucial 'intermediary' role in connecting airlines to governments etc.

The advantage of this scenario is that said service providers are able to rapidly transmit the required information in the approved format. Furthermore, the relevant government agencies can save significant time by avoiding consultation and other redundant stages, so as to ensure data transmission

Further to the above, there are several technical and administrative issues which would need to be agreed upon and integrated between the parties - and it can take several months (sometimes years) for the whole process to be completed.

There are many commercial organisations that offer such these solutions for connecting air carriers with 'governments' around the world. Passenger data gateways are different due to the potential and product portfolio of each provider. However, most companies are trying to ensure an end-to-end solution for governments in obtaining, collecting, transmitting and storing Advance Passenger Information (API) and Passenger Name Records (PNR) data

Typically, the main services offered by (the above referred to commercial organisations) are:

- submission of data in a standard format;
- direct connectivity with airlines etc/ to collect passenger data;
- provision of data in line with WCO/IATA/ICAO rules;
- transmission of data to 'Single Window' and / or other relevant government agencies – as per the relevant, national legislation;
- connectivity options with other forms of transport

SITA, WCC, IDEMIA, IBM and others are offering collection, transmission, processing and profiling of passenger data as commercial service providers. According to SITA (as at 2023), there are over 600 airline carriers connected to their gateway, enabling fast implementation and certification.

WCC's HERMES 'Passenger Data Gateway' (PDG) is an end-to-end solution for governments who prefer to have full control over obtaining, managing and forwarding Advance Passenger Information (API) and Passenger Name Records (PNR) passenger data.

Alternative commercial service providers offer gateway services that act as a "black box". The main differentiator of WCC's PDG is that the government has full control over the data and the associated data connections (WCC, 2023).

Another model is goTravel, the United Nations-owned software solution. Despite goTravel not being a commercial product, it offers complete and comprehensive end-to-end solutions to governments. These include data ingestion, interactive API, analytics, integration with respective databases, artificial intelligence, machine learning and other options.

It is hopefully obvious that integration and data transmission processes through said service providers are not free. However, some service providers may offer free connections to airlines etc. by placing some relevant conditions in the contract e.g. the broadly used version is that the service provider ensures free transmission of data from one Centre to the Single Window in a unique format and charges governments fees for such service

Typically, countries (governments) allocate significant resources (including finance) to the implementation of API and PNR systems - and the service fees of commercial service providers (as referred to just above) constitute part of general expenditure

Another offered option (by said service providers to governments) is to cover expenses from associated ticket sales - and thus indirectly charges the associated costs to passengers. In most cases, this option covers the entire implementation process including hardware, targeting system, carrier engagement and legal and technical support

Additional proposals could be the integration of whole systems to electronic visas. Taking into account the large volume of this approach, this is quite expensive and charged per passenger. Namely, all costs included extra to the airline tickets.

At first glance, this proposed version may seem convenient, attractive and profitable for governments. However, when we look at the issue deeply from the aspects of the national legislation, passengers' rights and the position of governments, this scenario may not be considered so appropriate and effective

Furthermore, this latter policy goes against the financial strategy of airlines. These additional charges are used to solve the issues related to the national security of the countries, not aviation security.

The arrangement and transmission of high-quality data between air carriers and 'Single Window' are quite costly and, in most cases, commercial service providers adopt different payment methods, such as per-passenger charging. Certainly, prestigious professional services firms are following ICAO guidelines and IATA policy, and their systems are priced 'traditionally'

Furthermore, a 'per passenger fee' mechanism is not stable and fluctuation in the number of passengers disrupts assurance and permanency.

Consequently, governments etc. should carefully consider and 'get to fully understand' all scenarios before starting API and PNR implementation. Particularly, commercial service provider solutions require deep analysis - not only from the financial and technical aspects - but also from legal, data privacy, passengers' rights, national security aspects etc.

Associated passenger data systems must be secured and designed with robust measures to protect the confidentiality, integrity and availability of data collected. The associated legal and technical framework etc. must also be in place and 'fit for purpose'

Included in the above is the need to establish associated protocols for e.g. data entry / validation / verification / access control / encryption and obtrusion detection.

To sum up, if the technical and financial capacity of a country permits arranging direct connections between commercial air carriers and 'Single Window' - through a secure channel under the framework of a one-to-one relationship, that potentially eliminates the need to engage with a commercial service provider as well as future dependency

However, commercial service providers are an effective solution in case of a lack of resources.

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Deliberately Blank

Use of API & PNR Data during *Initial Air Accident Response Operations

(*Particularly with respect to an Accident Airline's '**Passenger Manifest Verification - PMV**' Process)

(For more on PMV follow the below link:

https://aviationemergencyresponseplan.com/information/

When said (the above) link opens - scroll down list of 'info articles' displayed until you get to the one entitled:

Passenger Manifest Verification - PMV Process

Click on it to open and read

Having now provided various, relevant ***background*** information herein (up to page 22) - we can now turn to what this specific document (information article i.e. the one you are reading right now) is all about i.e. as per the title in **red** at the top of this page

To re-iterate, there is / can be a host of personal information / data (including relevant contact info) in 'active' (in use) ***APIs*** and ***PNRs*** etc. - **which could / will be of 'huge' significance, advantage etc. if used to good effect in the response to a 'catastrophic aircraft accident' type scenario** (and lesser types of 'crisis' where it is also vitally important to know [as exactly as possible] who was on board any particular passenger airline flight e.g. hijack / unlawful interference type scenario)

The 'interested' reader might think "good idea / get it implemented and, if there are currently any problems in so doing - remove them accordingly". Said 'interested' reader might now have also worked out that such problems do indeed (as at 2024) exist and 'no one' is currently doing anything useful to legally / ethically / practically etc. 'work around' them

The 'biggest' of said problems is that just about every * country in the world having reasonably effective and efficient '***data protection*** / ***personal privacy***' type laws (and equivalent) - has so far failed to adequately provide for an eventuality (such as a catastrophic aircraft accident and equivalents as described herein) and the **critical, associated need to very rapidly 'share' associated personal data - WITHOUT such law(s) etc. unnecessarily 'getting in the way' of rapidly so doing**

* Around 137 countries in total had one form or other (good / bad / otherwise) of data protection type 'law' etc. as at December 2021. Follow below link for further details

https://unctad.org/page/data-protection-and-privacy-legislation-worldwide

For the 'interested' reader we have produced our own (separate document) 'information article' which explains / expands upon this latter / above situation (problem) in considerable detail. It also includes a proposed and easily usable 'solution'. Said info article can be found at the end of the below link:

https://aviationemergencyresponseplan.com/information/

When said (the above) link opens - scroll down the list of 'information articles' then displayed until you get to the one entitled:

Data Protection Aspects of Airline Emergency Response Ops

Click on it to open and read