SECURITY ACCESS & EGRESS

Implementation Guide

Passenger Facilitation

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1. Foreword
This document was established in close cooperation with ACI.

Following September 11th increased and constantly changing security requirements continue to add costs to the industry. Satisfaction with traveling by plane is at moderately favorable levels. The screening process is often described as inconsistent, stressful and invasive. The multiple stakeholders around the security process including airport operators, airlines, and multiple government agencies make security process improvement a complex challenge to tackle. Each of these stakeholders have operational goals. Each of these stakeholders have operational goals especially with regards to improving efficiency (maximizing capacity utilization whilst minimizing operational costs), security and passenger experience. For the aviation industry and their customers a pleasant end to end passenger experience is becoming a necessity to meet increasing customer expectations and to address the escalating costs in financially challenging times. Global Aviation Industry will transport 3 billion passengers in 2015, suggest the challenge facing both the passenger and the aviation industry.

2. Introduction
In developing IATA Recommended Practice 1701h Security Access and Egress it became apparent that there is a significant benefit in documenting various aspects of the overall processes at the security checkpoint. This guide is not intended as a manual to develop a new security checkpoint as the complexity of such an undertaking could not be done justice in this publication. The content of this document is intended to be used as guidance material and to be considered when applicable, subject to local requirements. This guide is not a definitive or binding document. This Implementation Guide on Security checkpoint access and egress is the third edition and as such should be viewed as the basis for further development. In this context, any comments, suggestions or proposals for enhancements are welcome and should be directed to the Project Manager Passenger Facilitation.
2.1. Security Checkpoint Access and Egress

2.1.1. The Problem

Increased and constantly changing security requirements continue to add costs to the industry. Unfortunately delays associated with passenger processing are significant as the number of passengers grow and security threats and border protection measures proliferate around the world. Passengers and in particular business travelers assign their most negative ratings the time it takes to get through airport security screening.

2.1.2. The Solution

The IATA Passenger Facilitation project sets out to improve the passenger flow at security checkpoint with existing technology and infrastructure in order to support passenger growth, reduce waiting times and reduce delays caused by security. The RP 1701h on security checkpoint access and egress established by PFWG in conjunction with ACI will be used as the basis and guidance to achieve this goal. This would be achieved by conducting airport visits to analyze airport terminal design, layout, infrastructure and process flow to improve the service provided to the passenger.

2.1.3. Benefits

All Stakeholders:
- Avoidance of unnecessary increase in security charges

For Airlines:
- Improved value proposition
- Improved on time departure through reduced queues and waiting times at security
- Cost avoidance of unnecessary increase in departure delays caused by security
- Cost avoidance of increased security tax partially or totally recharged to passenger

For Airports:
- Reduced queue length and times which will facilitate a more efficient use of space and a deferment of infrastructure requirements and costs
- Improved passenger throughput with existing technology and infrastructure which will support passenger growth and avoid unnecessary increase in passenger security charges
- Improved processing times at the security checkpoint will generate economic benefits in retail revenue
For Passengers:
- Reduced queuing times, less stress and hassle
- Unnecessary increase in security charges
- Increased discretionary time after security checkpoint

For Governments:
- Maintaining the determined level of security with existing resources
- Reduced size of crowds minimizes the level of threat and facilitates behavioral analysis
- Cost avoidance of increased security taxes

2.1.4. IATAs and ACI’s Approach and Roadmap

Lead the industry and serve its membership by addressing queues and waiting times at security checkpoint and bring a collaborative approach to stakeholders. With RP 1701h established, IATA Passenger Facilitation will use the global Simplifying the Business (StB) network of IATA staff, airline and airport champions, industry experts and strategic partners (if required) to mobilize the industry.

Pairing of airlines, airports and governments will allow IATA to facilitate the implementation of at least one recommendation to improve passenger flow. IATA will drive the project without interfering in the airlines’ or airports own commercial policies.

Approach:

- **Analyse**
  - Conduct Pre-Analysis through questionnaire (data collection)
  - Low peak visit to analyze terminal design, layout, configuration, etc.
  - High peak visit to analyze flows and spot check performance metrics

- **Improve**
  - Provide a set of solutions based on terminal design, layout, configuration
  - Agree and establish implementation plan
  - Introduce partners (IATA consulting or Strategic Partners) as needed

- **Measure**
  - Keep track of implementations
  - Encourage the measurement of tangible results
  - Encourage the measurement of passenger satisfaction

- **Share Progress**
  - Raise awareness and educate
  - Work together with the industry to report success
  - Establish and maintain guidance material
2.1. What support is available

2.1.1. IATA

We are challenging ourselves as an industry to improving efficiency whilst minimizing operational costs of our industry’s complex processes. While today’s consumers expect convenience, they are not willing to pay for the complexity that makes it possible. The answer lies in simplifying processes and making the most effective use of existing technology.

IATA’s role is to bring all of the parties together and lead a common vision to develop industry-wide standards. Additionally, working closely with our technology partners, IATA will ensure that all parts of the world have the support necessary not only to keep pace with, but also to benefit fully from change. In order to support stakeholders in the Security Access and Egress initiatives, Passenger Facilitation has developed a support model that includes industry suppliers, events, materials, campaigns and consultancy. Information can be accessed through the iata.org website, which provides links to materials, reports and campaign results.
IATA's main communication strategy is based on the following channels and actions:

www.iata.org

A central project information page is available on the internet under http://www.iata.org/whatwedo/passenger/Pages/passenger-facilitation.aspx The information page contains recommended practices, campaign results and implementation guides for each project.

Social Media

IATA Passenger Facilitation is a special interest group within LinkedIn under the broad umbrella of Passenger Experience. LinkedIn is the world’s largest professional network with over 120 million members and is growing rapidly. LinkedIn provides an open platform to exchange knowledge, ideas and opportunities with a broader network of professionals and can generate discussions on Passenger Facilitation topics.
Interactive Map

On the main page there is a link to an interactive map to visually display ABC deployments globally [http://www.iata.org/whatwedo/stb/maps/Pages/security-access-and-egress.aspx](http://www.iata.org/whatwedo/stb/maps/Pages/security-access-and-egress.aspx)

Industry Conferences

Regular participation within events such as Future Travel Experience, World Passenger Symposium, Airport Exchange etc. to build awareness, showcase innovation and provide latest updates.

Regional Awareness Workshops

The regional workshops are based on the 14-step passenger process developed by IATA. These events gather local stakeholders with the aim of raising awareness and providing support for the regions to speed up engagement and implementation.

Newsletter

Information via the Newsletter, reaching out to members and partners.

Webinars

With industry media or partners.
2.1.2. What the IATA Project team can do

The project team focuses on delivering the following mandate:

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Actions</th>
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<tbody>
<tr>
<td>Provide the basis for implementation</td>
<td>Publish recommended practice and implementation guide</td>
</tr>
<tr>
<td>Raise awareness and educate</td>
<td>Organize workshops, promote initiative at industry meetings and conferences</td>
</tr>
<tr>
<td>Contribute to business cases</td>
<td>Collect market data and publish market trends</td>
</tr>
<tr>
<td>Facilitate implementation</td>
<td>Regular follow up through IATA Regional offices</td>
</tr>
<tr>
<td>Speed-up deployment</td>
<td>Develop tools to collect airport and airline implementation request</td>
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2.1.3. What the IATA Project team can NOT do

The IATA project team will not interfere with airlines’ or airports own commercial policies

<table>
<thead>
<tr>
<th>IATA will NOT</th>
<th>IATA would rather</th>
</tr>
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<tbody>
<tr>
<td>Implement the project for an airport or airline</td>
<td>Introduce preferred partners that provide the service</td>
</tr>
<tr>
<td>Consult on a project for an airport or airline</td>
<td>Introduce IATA consulting team and preferred partners that provide the consulting</td>
</tr>
<tr>
<td>Finance a project for an airport or airline</td>
<td>Provide tools and data that supports the establishment of a business case</td>
</tr>
<tr>
<td>Recommend a vendor</td>
<td>Organize workgroup meetings, conferences workshops with Strategic Partners</td>
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2.1.4. The Business Case

Improving the passenger flow at existing Security Checkpoint represents significant benefits and will avoid unnecessary increase in security cost for the Industry.
2.2. ACI

Airports Council International (ACI) is the association of the world’s airports. It advances the collective interests of, and acts as the voice of, the world’s airports and the communities they serve.

ACI’s main objectives and roles are:

- Maximize the contributions of airports to maintaining and developing a safe, secure, environmentally compatible and efficient air transport system.
- Achieve co-operation among all segments of the aviation industry and their stakeholders as well as with governments and international organizations.
- Influence international and national legislation, rules, policies, standards and practices based on established policies representing airports’ interests and priorities.
- Advance the development of the aviation system by enhancing public awareness of the economic and social importance of airport development.
- Maximize co-operation and mutual assistance among airports.
- Provide members with industry knowledge, advice and assistance, and foster professional excellence in airport management and operations.
- Build ACI’s worldwide organizational capacity and resources to serve all members effectively and efficiently.

ACI pursues airports’ interests in discussions with international organizations. The most important relationship is with the International Civil Aviation Organization (ICAO), where international standards for air transport are debated and developed.

ACI has five Regional Offices, who play a very important role in the relationship with ACI members and the spread of best practices. The five regional offices are:

- ACI Africa in Casablanca (Morocco)
- ACI Asia-Pacific in Hong-Kong (China)
- ACI Europe in Brussels (Belgium)
- ACI Latin America-Caribbean in Panama (Panama)
- ACI North America in Washington, DC (USA)
ACI has six standing committees. These committees were mandated by the ACI Governing Board to provide guidance and council, and help shape current policy issues for Governing Board endorsement in their areas of expertise. They are also required to assist the Governing Board, Executive Committee and Secretariat, as appropriate.

2.2.1. The ACI World Facilitation and Services Standing Committees (WFSSC)

Airport facilitation consists of the efficient management of the flow of passengers, baggage, cargo and mail through the airport facilities, ensuring that services are delivered in a healthy, safe and secure environment, and meeting and exceeding when possible the needs and expectations of customers. This should be applicable for all scenarios, during good days and bad days, under normal operations and situations of flight disruption.

Passenger facilitation is not just achieved by airport operators in isolation. It requires a high level of interaction and co-ordination with partners and stakeholders that have different responsibilities in each step of the overall passenger process, from the time of booking to the time the passengers arrive at their final destination.

ACI World, through its Facilitation and Services Standing Committee, is determined to help airports improve their terminal flows and processes by providing a set of recommendations, guidelines and best practices, together with measuring and benchmarking opportunities provided through the Airport Service Quality (ASQ) programs.

ACI has identified the following strategic objectives for its Passenger Facilitation Strategy:

- To provide safe, secure and efficient processing of passengers and baggage;
- To provide a hassle-free travel experience that meets the needs and expectations of the different types of passenger traveling;
- To safeguard the interests of passengers and airports from inappropriate regulatory policies and airline (industry) business practices;
- To optimise the use of airport infrastructure and facilities to meet passenger growth and end-user requirements; and
- To build resilience into the passenger facilitation process to provide continuity of services during both normal and irregular operations.
3. Key Components of Security Access and Egress

3.1. Security Checkpoint Access:

The security checkpoint access can be defined as passenger eligibility check before queuing and/or the zone where passengers enter the queue and move towards screening. This area includes pre-screening and queuing, the divest zone and the tray feeding system.

3.1.1. Pre-screening and queuing zone

Sufficient space should be allocated for passenger preparation so that airport security managers have the space required to install signage, bins and other infrastructure to support passengers’ preparation for the screening process.

Pre-screening can be defined as the area where the passenger will find information on security regulations and may be located right before entering the queue. The queue at security is defined by a barrier, queuing system or eGates to ensure an orderly approach to the checkpoint.

It is recommended to have a centralized queueing system, where one queue feeds a number of lanes and passengers are screened on a first come first screened basis. Airports with more than 6 screening lanes may seek to implement two single queues serving multiple screening lanes provided that physical space permits two queues.

3.1.2. Divest zone and tray feeding

Divest zone is defined by the facilities available to allow passengers to unpack necessary items as required e.g. liquids, shoes, belts laptops etc. Tray feeding can be described as a system integrated in the checkpoint infrastructure for trays to be rolled back efficiently.

3.2. Security Checkpoint Egress

The security checkpoint egress can be defined as the zone where passengers have undergone primary and secondary screening to the point where they collect their belongings and move away from the X-Ray out-feed belt to re-pack their belongings. This area includes the composure zone, the egress seating area and the tray recovery system.

3.3. Composure zone

Composure zone is defined as the zone where passengers re-pack all belongings and leave the checkpoint area.

3.3.1. Egress seating area

Egress seating area is defined as the area where passenger may have tables and chairs to re-pack their hand luggage and put their shoes back on if shoe inspection is required.

3.3.2. Tray recovery system

Tray recovery can be described as a system integrated in the checkpoint infrastructure for trays to be rolled back efficiently.
3.4. Geometrical Configuration

Default security checkpoint configuration:

- Configuration “2 X- RAYS to 1 WTMD” (Walk-Through Metal Detector)
- Centralized screening area

The standard “2 X- Rays to 1 Walk-Through Metal Detector (WTMD)” security checkpoint configuration is widely used in centralized airport screening areas all around the world, providing great efficiency and flexibility. However there are many passenger screening combinations that an airport or a regulator may require. It should be noted that a number of regulators are currently considering alternative passenger screening technologies such as passenger security scanners. Airports that have implemented other security checkpoint configurations (i.e. gate screening) may use the implementation guide as an overall reference benchmark, depending on their local arrangements. For airports developing the one stop security concept for connecting passengers, a centralized security checkpoint area would be the most efficient configuration.
3.4.1. Diagram and Dimensions

The following exhibits provide a typical layout of a screening lane pair, with what can be considered the minimum recommended dimensions for each area and function:

Following the previous schema, the 'best practice' participant airports have the following dimensions – in centimeters (cm):

<table>
<thead>
<tr>
<th>ZONE</th>
<th>Recommended Minimum</th>
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<tbody>
<tr>
<td>A  Pre-screening and queuing</td>
<td>700 cm</td>
</tr>
<tr>
<td>B  In feed lengths (Divest)</td>
<td>400 cm</td>
</tr>
<tr>
<td>C  Out feed lengths (Composure)</td>
<td>600 cm</td>
</tr>
<tr>
<td>D  Egress Seating</td>
<td>400 cm</td>
</tr>
<tr>
<td>E  Space between lanes passenger movement</td>
<td>450 cm</td>
</tr>
<tr>
<td>F  Lane width</td>
<td>200 cm</td>
</tr>
</tbody>
</table>
3.4.2. Alternative Passenger Screening Configurations

Below are simply a few examples to illustrate that the recommended minimum space between lanes of 4.5m will not be sufficient if more than one walk-through metal detector or security scanners are to be installed.

It is recommended that all commissioning airports, airlines and government authorities select experienced professionals to assist them with alternative screening configurations.
3.5. Security checkpoint Infrastructure

3.5.1. Minimum Infrastructure
1. Roller beds aligned with X-Ray
2. X-Ray
3. Walk-Through Metal Detector
4. Roller beds aligned with X-Ray out belt for screened bags
5. Secondary search tables placed at 90°
6. Chairs or benches at exit

3.5.2. Best practice Infrastructure
7. Diversion roller beds for secondary screening
8. Monitor for remote screening image
9. Repack tables at and chairs at exit
3.6. Staff Allocation

The following is an example on how staff can be efficiently allocated.

1. 1 supervisor / queuing manager on duty during peak times
2. 1 tray loader per X-Ray in-feed
3. 1 screening officer per X-Ray
4. Female searcher
5. Male Searcher
6. 2 Searchers for secondary bag search

In certain countries or regions (EU, USA, AUS, CAN, etc.) additional staff may be allocated to perform Explosive Trace Detection (ETD) Searches or for Liquid Explosive Detection Searches.

Recommendation:

While on duty, it is recommended to rotate staff between the various positions at regular intervals.
4. Measuring key performance

It is recommended to have a performance indicator measurement process. Security checkpoint waiting times and throughput are the minimum that should be measured for security management to be able to allocate staff efficiently, according to the flow distribution. Other key performance indicators are important to the security screening process and will help the airport focus on common goals and ensure those goals stay aligned with security operations. This focus will help an airport to stay on task and work on meaningful projects that will assist in reaching performance goals faster.

This section provides guidelines on how to measure key performance metrics

4.1. Guidelines how to measure and collect data

A. Queuing time
Time reserved for passengers to queue before screening. Queuing time is measured when the passenger enters the queue up until the point that the passenger puts the first tray or item on the belt connected to the x-ray machine.

B. Divest time
Time used by passengers to fill their tray, from the moment the first item is removed from their bag (or themselves) to the last item placed in tray (or on the conveyor) and passenger is ready to proceed to passenger screening.

C. Screening
The conveyor inside the x-ray scanner.
D. Clearance Conveyor

The conveyor positioned right after the exit of the x-ray scanner, protected by a physical separation so that passengers cannot take their items back before screening process is completed.

E. Composure (or repacking) time

The time for repacking or composure is measured from the moment the passenger removes the first item from the tray until all trays are empty or bags are removed from the conveyor.

F. Exit

Passengers are considered as passing the exit when they physically leave the security area even if they continue their composure/re-packing process outside that area (at separate tables for composure/re-packing).

4.2. Common Calculation Methods

4.2.1. Number of images (trays/objects/items) per passenger

Observations can be done by the following methods:

Calculate the number of images generated by passengers during loading for a statistical population of 100 passengers as a minimum; or

Count the number of trays/objects/items coming out of the x-ray machine and divide by the number of passengers coming through WTMD for the same period. (requires 2 staff to measure); or

Use statistical data generated by equipment (x-ray scanners, WTMDs, readers of boarding cards, etc.) – divide the total number of images by the number of passengers that walked through the WTMD or security scanner/advanced imaging technology.

4.2.2. Overall divesting time per passenger

Observations should be made to calculate the duration of the divesting process with a statistical population of 100 passengers either measured in one period, or by adding different observation periods separated during the day, or performed during the same period of time by several observers. Measured from the moment the first item is removed from their bag (or themselves) to the end of the divesting process (last item placed and passenger is ready to proceed to passenger screening). For airports that have a separated divest station (i.e. not attached to an individual machine, overall divest time is divest time + loading time).

4.2.3. Overall Passenger Screening Processing time

Observations should be made to calculate the duration of the screening process of the passengers from the moment they are authorized to pass the WTMD or Security Scanner to the moment they exit the WTMD or Security Scanner including the time if they are stopped for screening. The statistical population should be at minimum of 100 passengers either measured in one period, or by adding different observation periods separated during the day, or performed during the same period of the day by several observers.
4.2.4. Overall Baggage Processing time

Observations should be made to calculate the duration of the baggage processing time from the moment one tray or bag enters the x-ray scanner to the moment that bag is exiting the security area. Some bags/trays are subjected to secondary screening and this will need to be included in the calculation. The statistical population should be at minimum 100 baggage either measured in one period, or by adding different observation periods separated during the day, or performed during the same period of the day by several observers.

4.2.5. Time for repacking or composure per passenger

Observations should be made to calculate the duration of the repacking or composure process per passenger from the moment the passenger takes his/her first object from the moment that passenger exits the security area. A statistical population of at minimum 100 passengers, or trays, should considered either measured in one period, or by adding different observation periods separated during the day, or performed during the same period of the day by several observers.

4.2.6. Passenger Screening

Percentage of alarm –average metallic alarms at primary screening.

4.2.6.1. Alarm resolution

Security Scanner/Advance Imaging Technology as secondary
From the time the passenger is called, to the time he/she walks on, or are stopped for a search.

Pax Hand search –
From the time the officer commences the search until the time the passenger is permitted to move on.

Targeted hand search
From the time the officer commences the search until the time the passenger is permitted to move on.

Hand Held Metal Detector
From the time the officer commences the search until the time the passenger is permitted to move on.

Explosive Trace Detector
From the time the officer takes the first trace until the passenger is permitted to move on.
4.2.7. Baggage Screening:
Percentage of alarm – First passage

4.2.7.1. Alarm resolution
Bag search full
From the time the screener picks up the tray off the reject belt until the time the passenger is permitted to start composure.

Targeted Bag search
From the time the screener picks up the tray off the reject belt until the time the passenger is permitted to start composure.

Explosive Trace Detector
From the time the screener takes the first trace until the time the passenger is permitted to start composure.

Note: measures should be taken on a minimum of 100 passengers during peak hours

4.3. Measurement of passenger perception

Excellent customer service is one of the greatest assets for an airport in today’s competitive environment. There are many factors that can help an airport to build its customer base, and customer service can be a determining factor in the success of an entire operation.

The ACI ASQ Survey is the airport customer satisfaction benchmark program with over 200 airports in more than 50 countries surveying their passengers every month of the year. All airports use the same questionnaire and follow the same methodology. Each participating airport receives the data from all other participating airports allowing it to identify best practice and to measure its own performance precisely. Excellence in service is not a one-off, it is proven to be the result of continual effort and commitment to providing the best possible service.

Recommendation:

The survey should measure at least the courtesy of the security staff and the perceived time at the security checkpoint.
4.4. Passenger Processing

The methodologies used to conduct capacity and level of service assessment can be more or less elaborated. Mathematical capacity assessment methods can be employed to determine relevant facility requirements where actual or forecast throughput figures are known. The capacity assessment of a terminal building is a highly complex exercise involving elements such as queuing theory, simulation and statistical analysis, together with detailed studies of people movement patterns to, within, and between these elements. Those responsible for initiating a capacity analysis, or for sizing facilities, should carry out the exercise in as much detail as possible in order to eliminate likely sources of errors and bias that can result from neglecting interaction from and to upstream and downstream systems.

However in some instances it may be necessary to obtain fairly quickly some ideas of either the capacity of an existing facility or the size that a facility needs to be in order to handle a given throughput. A variety of simplified formulae have been developed for this purpose. The equilibrium between supply, demand and level of service is expressed in these formulae. It must be emphasized that such formulae employ many simplifications and approximations and are not intended as a substitute for the detailed evaluation referred to above. Not all formulae will be applicable to all airports since not all local factors are included.

4.5. Monitoring Passenger Flow

Passenger flow monitoring allows airports to reduce wait time at security, improve operational efficiency, increase non-aeronautical revenues, and enhance the passenger experience. Monitoring passenger flow-rates, and dwell time can indicate where improvements to passenger movement are necessary based on real-time and historical data. It can also highlight queue lengths, passenger wait-times and lead to predictive staff scheduling. Various technologies exist to monitor passenger flow. Such technologies include, throughput counters, Bluetooth, Wi-Fi, vision sensors and CCTV. Bluetooth tracking measures passenger queuing wait times detects, reports and flags queue overflow situations. Wi-Fi tracking monitors passenger location and movements (by configurable zones), and provides reporting tools for real-time and historical data analysis. Each technology can help display the predicted waiting times to keep passengers informed.

*With the courtesy of Zurich Airport*
5. Passenger Information

5.1.1. Information on screening procedures

Every passenger who travels goes through the airport security checkpoint. These checkpoints may be operated by governments, airports or subcontracted to private security companies. Screening regulations may therefore vary from one country to another. In order to speed up the process at the security checkpoint passenger should be well informed on prohibited/restricted items and on items to be divested or removed from bags. The following sections provide a collection of solutions applied at various airports around the world.
5.1.2. Pre-Travel

Information on Airports Website:

With the courtesy of Zurich Airport
Information on Airlines Website:

Liquids in hand baggage

Restrictions and allowances for liquids departing from...

- European countries
- USA and Canada
- Australia, New Zealand, Singapore and Thailand
- South Africa and Mauritius
- Bahamas, Cayman, Turks and Caicos and Caribbean Islands
- Brazil and Chile
- China, Hong Kong, Macau, Japan and Taiwan
- United Arab Emirates (Abu Dhabi and Dubai), Kuwait and Qatar
- Malaysia, Indonesia and the Republic of Korea

USA and Canada

Restrictions on the quantities of liquids, gels or pastes are:

- they must be held in individual containers not exceeding 100ml (3 US ounces)
- the containers must be carried in a separate, clear-plastic, zip-top or re-usable bag
- the bag must not exceed 20cm x 20cm (8ins x 8ins) in dimensions
- the bag must not exceed one litre capacity
- the bag must be completely closed
- the items must fit comfortably in the bag
- the bag must be x-ray screened separately from other hand baggage at airport security points
- before boarding, secondary searches may be performed if you are carrying liquids.

Duty-free goods containing liquids may be carried, provided they are purchased after the security screening point. We advise you to pack any duty-free liquids in your checked baggage where possible.

If you are departing the US or Canada, your duty-free liquids will be delivered to the boarding gate or pick-up point in the secure area in a Sealable Tamper-Evident Bag (STEB).

With the courtesy of British Airways
Information on Mobile Phone Application

With the courtesy of Copenhagen Airport

5.1.3. Before Entering the Queue

In order to avoid unnecessary discussions during the screening process on prohibited items it is recommended to provide information combined with waste bins before entering the queue.

With the courtesy of BAA Heathrow
With the courtesy of ADR Fiumicino Airport

With the courtesy of Kansai Airport
5.1.4. In the Queue

Video

With the courtesy of Zurich Airport

Hologram

With the courtesy of Dubai Airport
Banners

Your flight is only 4 steps away from here

With the courtesy of ADR Fiumicino Airport

5.1.5. Divest Area

Information in trays

With the courtesy of Basel Airport
6. Pre-Screening

6.1. Airside Access

To provide access to the security checkpoint a 2D bar code scan is recommended to be conducted before the passenger enters the queue. The 2D bar code scan will determine the passenger’s eligibility to access restricted area and/or dedicated lines such as fast track for premium passengers and frequent travelers. For further information on 2D bar codes, please refer to IATA BCBP Implementation Guide 4th Edition.
6.2. Automated Access:

Access gates to the security screening area must be equipped with barcode readers. Depending on the airport and aircraft operators' specific requirements, the boarding pass readers may also collect data from near-field communication (NFC), radio frequency identification (RFID), staff identification cards, frequent flyer cards, credit cards, biometrics, etc.

The gates may also be equipped with a display and green/red LEDs to provide additional user guidance.

With the courtesy of KABA
Examples of Gate Dimensions

With the courtesy of Mühlbauer

With the courtesy of KABA
Wheelchair Accessible Gates

Airport operators may opt to install wheelchair accessible gates only despite the requirement of more floor space. Should an airport operator decide to install a combination of gates, it is recommended to use signage to indicate those gates that are wheelchair accessible.

Note: All dimensions are expressed in millimeters. The above drawings and dimensions are examples; the exact measurements should be obtained from the manufacturers.

Automated access gates can be combined with a manned access gate for passengers needing assistance (i.e., families with children or wheelchair passengers).

Processing times may vary depending on the level of detail of background checks and if biometrics are being captured. The amount of experience passengers have with automated gates may also impact processing times. Automated access gates reading boarding passes only have
average processing times of nine seconds per passenger. This translates to an average throughput for a 30-minute demand period of 200 passengers per gate.

6.3. Passenger Segmentation

Typical segmentation policies include provisions for premium lanes (i.e., First Class, Business Class and frequent travelers), Economy Class lanes, lanes for passengers needing assistance and staff lanes. Operators refurbishing or designing new screening facilities will need to understand the proposed passenger segmentation plans and ensure that the appropriate infrastructure, space and layout is considered.

With the courtesy of Zurich Airport

6.3.1. Fast Track Security lane (Premium Passengers/Frequent Travelers)

Fast Track security lanes are provided at many airports offering Premium Passengers and Frequent Travelers a dedicated security lane. The fast track lane provides the passenger a speedier processing through the security checkpoint. Some airlines and airports recognize that passengers are willing to pay for getting through the security checkpoint faster and offer the service at a surcharge to any category of passengers.
6.3.2. Passengers with Special Needs lane

The definition of passengers with special needs is understood to be any person whose mobility is reduced due to physical disability ( locomotory or sensory), intellectual impairment, age, illness or any other cause of disability and who needs some degree of special accommodation or assistance over and above that provided to other passengers. Those passengers may be travelling with wheelchairs and medically necessary liquids. In many countries, passengers with special needs have priority over any other passengers and are accompanied by an airport staff. This category of passengers may also include unaccompanied minors and first time travelers.

6.3.3. Families with Children lane

Families with young children often travel with baby-related items such as liquids, strollers and diapers. To ease the pressure on parents struggling through an airport with young children, many airports offer dedicated family lanes. Where airport layout does not allow dedicated family lanes the lane can be combined with passengers needing assistance.

6.3.4. Last minute lane

The last minute lane can more often be found in transit areas and is dedicated to passengers who may miss their connecting flight due to late arrival of the aircraft.

6.3.5. Airline Crew and Airport Staff lane

At a great majority of the airports, airline crew and staff have priority over all other passengers. In airports where layout and space permits airline crew and staff have dedicated lanes.

6.3.6. Registered Travelers lane

Registered travelers are passengers who undergo a rigorous risk assessment process and have submitted their biographic and biometric data such as iris, fingerprint, face etc. to a Government. After successful enrolment, regular background checks are conducted against national databases and may include criminality checks. Airports in Canada, the United States and Europe offer dedicated screening lines for pre-approved, low risk cardholders.

Recommendation:

- Premium Passengers / Frequent Travelers
- Occasional Travelers / Passengers with young children or requiring special needs
6.3.7. The TSA self-select lanes

The TSA self-select lanes are modeled after familiar ski icons that guide travelers to choose the appropriate trail/lane based on their skill level.

Families and Special Assistance:
- Small children; strollers
- Assistance needed
- Travelling with medically necessary liquids

Casual Traveler
- Somewhat familiar with screening regulations
- Travels a few times a year
- Not an expert and does not want to be rushed at checkpoint

Expert Traveler
- Frequent traveler, knows how to get quickly and efficiently thought the checkpoint
- Familiar with screening regulation and always prepared

With the courtesy of TSA
6.4. Queuing

Waiting lines or queues are a common occurrence at the security checkpoint. Queues or waiting lines arise during peak times meaning that the number of passengers exceeds the capacity of the security checkpoint. Consequently passengers are not getting through the security checkpoint immediately but must wait.

6.4.1. Queuing Space

Queue width should be a minimum of 1 meter. The length of the queue is a factor of the expected process time. Having calculated these factors, the main criterion for determining the queue length is the average distance between two individuals waiting in the same line (inter-person spacing). The comfort distance varies from person to person and from culture to culture. In an ideal world, for planning purposes it is recommended to use 0.8 to 0.9 meters if site-specific standards are not available. Less than 0.8 meters is possible, but could conflict with other passengers or carry-on luggage.

6.5. Queuing Arrangements

6.5.1. Single queue serving multiple screening position

The majority of airports who operate a centralized screening checkpoint operate a single queue, serving multiple screening positions. Passengers go through the security checkpoint in the order of their arrival.
6.5.2. Two single queue serving multiple screening positions

A single queue serving multiple screening positions has its limits. In order to keep an efficient passenger flow, airports with more than 6 screening positions may implement two single lanes serving multiple screening positions provided that physical space permit two queues.

Recommendation:

It is recommended to use stanchion-barrier flexible queuing system which can be adapted depending upon operational situations provided that physical space and/or legal restrictions permit to change the lengths or size of the queue.
6.5.3. Passenger Segmentation serving multiple screening positions

Depending on airport layouts and available space, separated lines for a specific category of passengers can be added as required. Separated lines may have a dedicated X-Ray.

Airports that are space restricted may still offer a fast track for premium passengers to be ahead of the queue.
7. Divest

The Divest area is defined by the facilities available to passengers for unpacking necessary items as required at time e.g. liquids, shoes, belts laptops etc. For process efficiency it is recommended that the rectangular roller beds are aligned with the X-Ray feeding lane. Overlapping roller beds with stanchion-barrier queuing also allow passengers to start divesting while moving along the queue. The lengths of the divest facilities should accommodate at least three passengers.

Airports that have space limitations may add divest tables placed at 90 degrees angle.

7.1. Tray feeding and recovery

It is recommended to provide a mechanical system integrated in the checkpoint infrastructure for trays to be rolled back efficiently. To guarantee an efficient process without interruption, enough trays per screening lane should be provided. The number of trays required may vary depending on security regulations in place (separate screening of laptops), the number of items which may be placed in a tray and the number of passengers walking through the security checkpoint per hour.
Integrated tray recovery system

With the courtesy of ADR Fiumicino Airport
**Tray recovery trolleys**

Tray recovery trolley equipped with a push-up mechanism is recommended when automated recovery is missing

7.2. **Number of trays**

The number of trays used by one passenger depends on the size of the tray and the number of items that need to be screened separately. The more trays used by a passenger the slower the process. Consideration should be given when choosing the size of trays to the screening regulations in place, climate (coats and jackets), mandatory shoe inspection, etc.

Passengers often deliberately use too many trays. Tray loaders should proactively assist passengers to use their trays at their full capacity. Laptops and iPads can be screened in the same tray as long as they fit next to each other and do not overlap.
7.2.1. What can go in the same tray

- Nothing must be placed below laptops
- Nothing must be placed on top of laptops
- Laptops and iPads must not overlay

7.2.2. Distance between trays

Tray loaders should proactively reduce distance between trays to minimum 10 centimeters to maximum 20 centimeter on the X-ray feeding belt. Ideal distance between trays in combination with ideal speed of belt (20 cm/s) will allow a continuous flow of image screening. Infeed belts may be equipped with sensors to automatically calculate the distance between trays.

*With the courtesy of Zurich Airport*
7.2.3. Shoe inspection

A certain percentage of shoes containing significant metal masses still cause alarms during security screenings. Some airports require mandatory shoe inspections for all passengers, while other airports may conduct random shoe inspections. It is recommended to have dedicated trays for random shoe inspections or trays with a shoe compartment for mandatory shoe inspections.

Some airports deploy shoe analyzer, employing low-frequency electromagnetic fields which are non-ionizing. Passengers do not need to remove their shoes.

Shoe Scanner
Recommendation:

When shoe inspection is required it is recommended to offer plastic slippers or to provide soft floor covering.

8. Screening

8.1. Secondary Passenger Search

In order to keep a constant flow it is recommended to conduct the secondary passenger search away from primary lane. In order to do that it is recommended to have a male and a female searcher allocated.

8.1.1. Secondary Search Cabins

Airports have an obligation to provide secondary search cabins for passengers that do not want to be search in public. Secondary search cabins should be placed close by the security checkpoints ideally between two screening lanes if space permits.
8.2. Secondary Bag Search

Secondary bag search should be conducted away from primary lane in order to keep a constant passenger and bag flow.

8.2.1. Secondary Bag Search Tables

It is recommended to place tables at 90 degrees. Airports that are refurbishing their security equipment should consider to install diversion roller beds where bags are separated for secondary search.
Tables placed at 90 degrees

Diversion roller beds and tables placed at 90 degrees
9. Egress

9.1. Composure roller beds

The Composure area is defined as the facility where passengers repack their personal belongings. For process efficiency, it is recommended that rectangular roller beds and tables are aligned with X-Ray outfeed belt. Airports that operate manual tray recovery should make sure that trays are proactively removed and that the full length of roller beds are used for repacking. Roller beds may be powered to move trays forward.

With the courtesy of Zurich Airport

Recommendation:

The roller beds should accommodate at least five passengers. Inclination of composure roller beds is recommended when automated tray recovery or power assisted roller beds are missing.
9.2. Egress seating area

Egress seating area is defined as the area where passengers may have tables and chairs to re-pack their hand luggage and put their shoes back on if shoe inspection is required.

Tables and Chairs at exit:

With the courtesy of Zurich Airport

Recommendation:

It is recommended to provide tables and seating facilities to accommodate at least two passengers per X-Ray lane.
10. Additional Considerations

10.1. Publishing of performance metrics

More and more airports publish their performance metrics and make queuing times available to passengers. The following are examples of airports that make waiting times at the security checkpoint available:

Airport Monitor

*MAXIMUM WAITING TIME FOR SECURITY CHECK IN 90% OF CASES*

*PERFORMANCE FEBRUARY 2014*

*WITHIN 4 MINUTES.*

*WITH the courtesy of ADR Fiumicino Airport*
Dynamic Signage

With the courtesy of Montreal Airport

Airport Website

With the courtesy of BAA Heathrow
Smart phone app:

With the courtesy of Copenhagen Airport
10.2. Ambience

Airport ambience is a key driver of passenger satisfaction and it is very important to provide a good ambience, focusing at least on the following aspects:

10.2.1. Noise absorbing ceilings

Absorbent materials can reduce sound pressure levels in the room allowing for a more pleasant and quiet environment.

10.2.2. Homogenous light

Good lighting can enhance the mood of passengers and aid screeners during the security screening process.

With the courtesy of Zurich Airport
10.2.3. Cleanliness

Well maintained facilities, no litter, graffiti, worn or damaged facilities. Passengers entering a security checkpoint may need to discard restricted items before reaching a screening lane. It is recommended to positioning waste bins along and after the queue to maintain a clean and litter free environment.

With the courtesy of Montreal Airport

10.2.4. Temperature

Interior terminal temperatures should be set at a comfortable level for all passengers.

10.2.5. Background music

Soothing music can help put passengers at ease during long wait times at security checkpoint.

Recommendation:

It is important to provide a good ambience, focusing on cleanliness, light and temperature
10.3. Employee Training

Apart from the mandatory security training required by the Regulator, customer service training is strongly recommended. Being pleasant, friendly, and courteous always makes a stressful situation better and it increases the likelihood of customer satisfaction and a good feedback on passenger experience.

Recommendation:

Train your staff to be courteous and helpful. Basic greetings such as “Good morning Madam, Sir… have a good flight”

Workshops are very effective as they combine training, development, team-building, communications, motivation and planning. Workshops are also effective in customer relationship management, managing change and achieving improvement. Workshops are necessarily participative and therefore encourage involvement and particularly the creation of new initiatives by staff.
11. Facts and Figures

By the end of 2015 185 airports were visited worldwide. The list of airports visited can be accessed through the interactive map: [http://www.iata.org/whatwedo/stb/maps/Pages/security-access-and-egress.aspx](http://www.iata.org/whatwedo/stb/maps/Pages/security-access-and-egress.aspx). Out of the 185 airports, 84 have already started to implement recommendations.

11.1. Survey Results

A survey targeting all airports visited in 2014 was conducted beginning 2015 with 96% response rate. The scope of the survey aimed at evaluating the benefits of the 1:1 visits, Stakeholder satisfaction with the Project and additional opportunities to create Member value for ACI and IATA. The questionnaire was established jointly by IATA and ACI based on the key objectives and was conducted through an online survey tool.

11.1.1. Summary of Key Results

- 96% have rated the airport visit as good or very good overall.
- 91% of the responded rated the interaction with the Implementation Manager/IATA staff as good or very good.
- 66% of airports are interested in an end-to-end evaluation to improve passenger flow and customers satisfaction throughout the ground process.
- All airports are interested in additional ACI/IATA products and services
The 1:1 airport visits can last up to 4 days depending on the size of the airport and consists of several elements. The majority of respondents evaluated every phase of the analysis as being good or very good. The interaction with the Regional Implementation Managers or IATA staff has obtained the highest score.

With one exception, all airports see value in conducting 1:1 visits. It helped to identify bottlenecks, root causes and learn about best practice solutions. In addition, it supports the decision making and change management process.
11.2. Benchmark Data

The data collected during the airport visits may help to identify the current situation and determine the requirements for potential solutions. The results showed the following facts and figure for managing passenger process.

11.2.1. Metallic Alarms

Metallic alarms considerably slow down the process. It is of outmost importance to prepare passengers well in advance. The following metallic alarms were measured when conducting 1:1 airport visits:

![Metallic Alarms per Region](image1)

![Global Metallic Alarms](image2)

11.2.2. Screening Images

It is difficult to benchmark the number of screening images generated by passengers as they may vary depending on the following:

- Security regulations in place the number of items that need to be removed from the bag (liquids, laptops, iPads etc.)
- Mandatory shoe inspection
- Size of trays
- Climate (winter coats, boots, etc.)
- Airline policy for hold baggage
- Etc.

![Screening Images per Region](image3)

![Global Screening Images](image4)

*Note: Shoe inspection is mandatory in North America*
11.2.3. Queuing Times

The queuing time is always measured in peak hours and is the time reserved for passengers to queue before screening. Queuing time is measured when the passenger enters the queue up until the point that the passenger puts the first tray or item on the belt connected to the x-ray machine.

11.2.4. Throughput Numbers

It is difficult to benchmark throughput numbers as they may vary depending on the following:

- Alarm resolution (full pat down or target search)
- Passenger being sent back to remove metallic objects
- Secondary passenger search conducted in primary lane
- Flow is stopped when secondary passenger search is being conducted
12. Resources - Industry Groups

Security checkpoint access and egress is a multi-disciplinary issue and as such has an impact on many industry functions, best practices and standards. The following summarizes the main industry groups involved in security checkpoint access and egress:

12.1. Passenger Service Conference (PSC)

Responsible for the adoption of Resolutions and Recommended Practices specifying standards and procedures on Passenger Services related issues, including recommendations on the 14 steps passenger journey. Agreements reached at the Passenger Services Conference are published in the Passenger Services Conference Resolutions Manual. PSC also provides a forum for the discussion of new developments in the airline industry and the development of policies and procedures to meet these changes. The PSC can meet jointly with its counterpart, the A4A Airlines for America, formerly known as Air Transport Association of America (ATA), where appropriate.

12.2. Passenger Experience Management Group (PEMG)

IATA’s Passenger Experience program addresses the end to end passenger journey from ticket purchase through to arrival at destination. It comprises a range of projects to improve the travel experience and help reduce unnecessary operational costs to the industry. The PEMG is responsible to set directions for all areas within Passenger Experience and approve proposed standards and procedures as well as any future products and/or PEMG activities.

12.3. Passenger Facilitation Working Group (PFWG)

IATA’s Passenger Facilitation Working Group is a sub-group of PEMG and addresses process areas controlled by government authorities, such as Security, Immigration and Customs. PFWG will improve the facilitation of these processes by enhancing passenger preparedness at the security checkpoint through the establishment of recommended practices and implementation guides.

12.4. Airport Council International (ACI)

Airports Council International is the association of the world’s airports. ACI represents the collective positions of its membership, which are established through committees and endorsed by the ACI Governing Board. ACI is responsible for the establishment of policies, standards and best practices representing airports’ interests and priorities. ACI makes a significant contribution to providing the travelling public with an air transport system that is safe, secure, efficient and environmentally responsible.
## 13. Reference Documents

### 13.1. Reference Documents

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<tr>
<th>Reference Document</th>
<th>Where to find it</th>
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<tbody>
<tr>
<td></td>
<td>34st edition of Passenger Conference Resolution Manual effective 1st June 2015</td>
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<td><a href="http://www.iata.org/ps/publications/Pages/pscrm.aspx">www.iata.org/ps/publications/Pages/pscrm.aspx</a></td>
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<tr>
<td>IATA BCBP Implementation Guide</td>
<td>IATA website:</td>
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<tr>
<td>Airline for America (A4A) 30.301h</td>
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