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CYBERSECURITY IN ANNEX 17

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- ✈ Global cyber-trends
- ✈ Cybersecurity scope
- ✈ Air transport ecosystem
- ✈ Concerning scenarios
- ✈ Acts of unlawful interference
- ✈ Annex 17 SARPs and guidance material
- ✈ Air Traffic Management Security Manual



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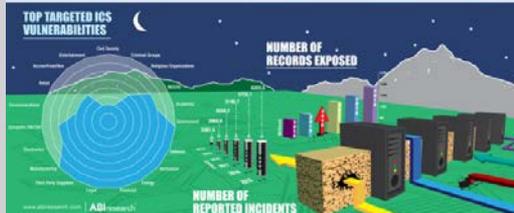
Global cyber-trends



- ✈ More users and devices
- ✈ Wider networks and faster connections
- ✈ Easier data storage and new efficient data types
- ✈ More usages and new services
- ✈ Less isolated architectures
- ✈ Quick adoption of new technologies

Cybersecurity Threats Rising Quicker than Spending

FREQUENCY OF DATA BREACHES IN 2013





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Cybersecurity scope



Physical Security



Data Security



Security roles, responsibilities, and accountabilities



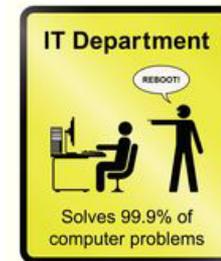
Risk Management



Education and training



Monitoring



Recovery

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Air transport ecosystem





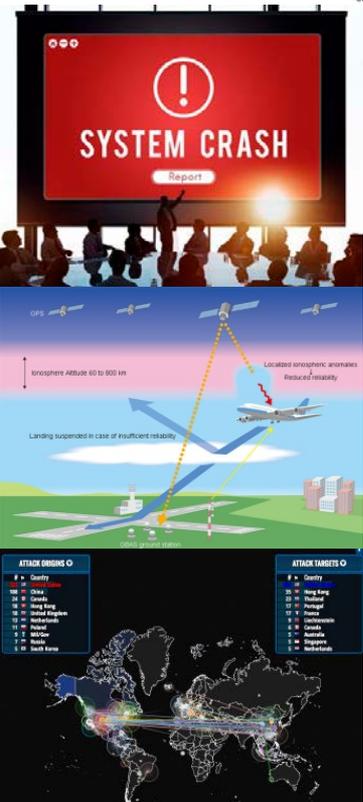
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Concerning scenarios

- ✈ IT network crashes/lack of disaster recovery plans
- ✈ Confidentiality, integrity, and availability of data
- ✈ Cyber hygiene across entities
- ✈ Denial-of-service (network unavailable to its intended users)
- ✈ Precision navigation and timing disruption (e.g. jamming, spoofing)
- ✈ Lack of encryption or authentication
- ✈ Incident management across regions/borders





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Acts of unlawful interference



- ✈ Unlawful seizure of aircraft,
- ✈ Destruction of an aircraft in service,
- ✈ Hostage-taking on board aircraft or on aerodromes,
- ✈ Forcible intrusion on board an aircraft, at an airport or on the premises of an aeronautical facility,
- ✈ Introduction on board an aircraft or at an airport of a weapon or hazardous device or material intended for criminal purposes,
- ✈ Use of an aircraft in service for the purpose of causing death, serious bodily injury, or serious damage to property or the environment,
- ✈ **Communication of false information such as to jeopardize the safety of an aircraft in flight or on the ground, of passengers, crew, ground personnel on the general public, at an airport or on the premises of a civil aviation facility.**



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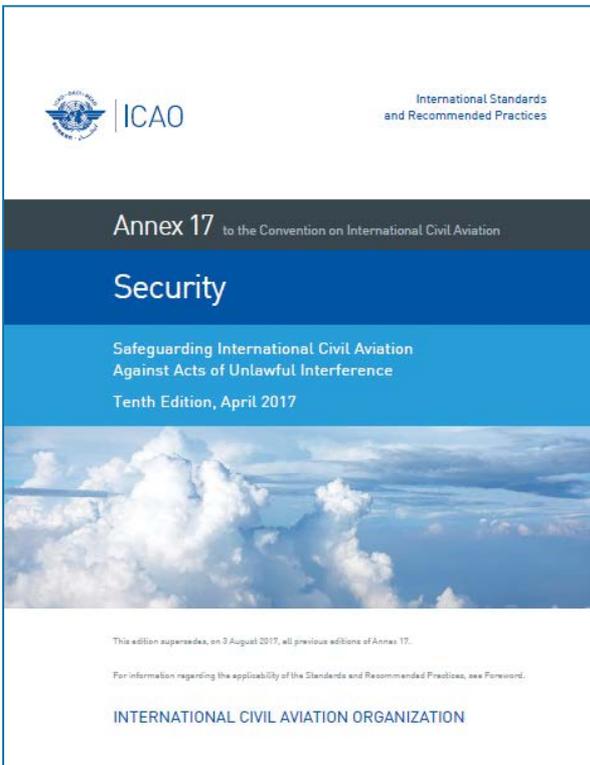
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Measures relating to cyber threats

4.9.1 Each Contracting State shall ensure that operators or entities as defined in the national civil aviation security programme or other relevant national documentation identify their critical information and communications technology systems and data used for civil aviation purposes and, in accordance with a risk assessment, develop and implement, as appropriate, measures to protect them from unlawful interference.

4.9.2 Recommendation – *Each Contracting State should ensure that measures implemented protect, as appropriate, the confidentiality, integrity and availability of the identified critical systems and/or data. The measures should include, inter alia, security by design, supply chain security, network separation, and the protection and/or limitation of any remote access capabilities, as appropriate and in accordance with the risk assessment carried out by its relevant national authorities.*



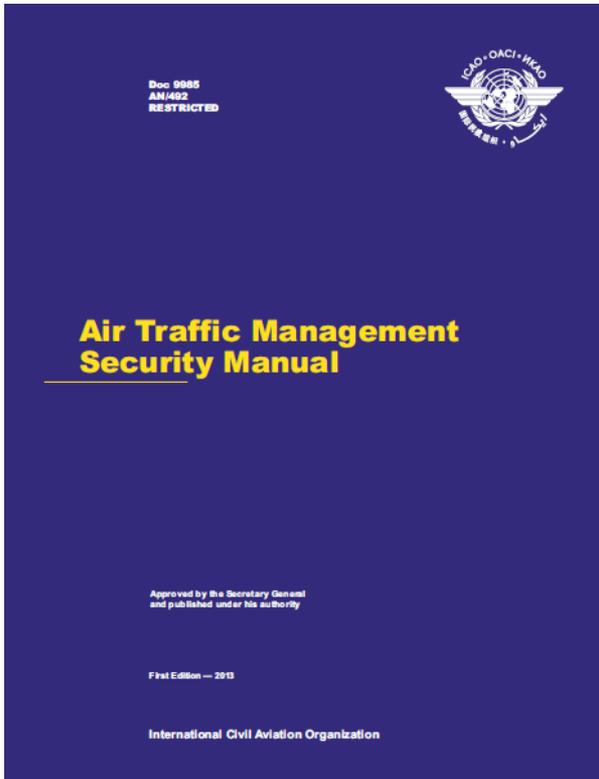


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ATM Security Manual



ATM security definition

(ICAO Circular 330, Civil/Military Cooperation in Air Traffic Management)

The contribution of the ATM system to civil aviation security, national security and defense, and law enforcement; and the safeguarding of the ATM system from security threats and vulnerabilities.

ATM security has dual requirements of protection of the ATM system against threats and vulnerabilities and the provision of ATM security services in support of organizations and authorities engaged in aviation security, national security, defense, and law enforcement.



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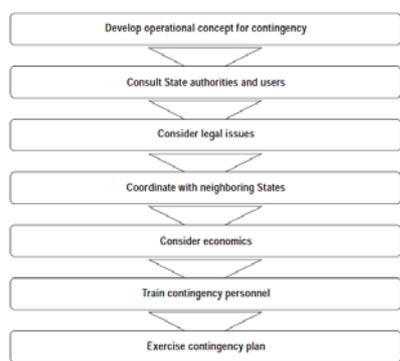


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ATM System Infrastructure Protection



- ✈ **Facility physical security and access control** (ATM facility design considerations, NAVAIDs, etc.)
- ✈ **Personnel security programme** (position risk categorization, personnel screening and vetting, third-party personnel security, etc.)
- ✈ **Information and Communication Technology (ICT) system security** (unauthorized access, tampering with the systems, attacks on the systems)
- ✈ **Contingency planning for ATM security** (planning, system degradation to a safe/secure situation, service continuity, recovery, maintenance of plans)





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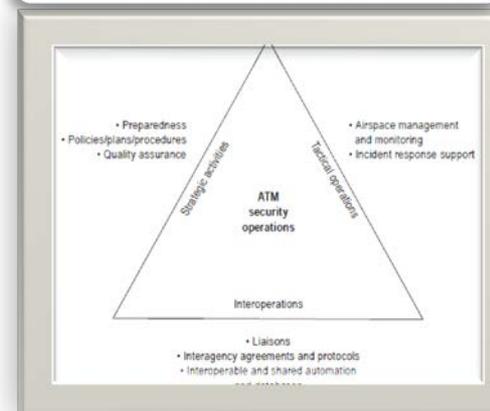
ATM Security Operations

✈ **ATM contribution to safeguarding against unlawful interference**

✈ **ATM support for law enforcement** (e.g. laser threats, man-portable air defence system threats)

✈ **Disasters and public health emergencies** (e.g. disaster response and recovery, communicable disease and other public health risks on board aircraft)

✈ **Airspace management for ATM security** (monitoring and reporting over security identification zones, emergency security control of air traffic, creation and monitoring of temporary airspace/flight restrictions)



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THANK YOU!