



## Singapore Airlines

Singapore Airlines is reportedly one of the world's leading carriers with 16 million passengers per year flying its top-ranked gateway spanning five continents and 59 cities. Widely known as a symbol of service excellence, Singapore Airlines is committed to providing customers with the best flying experience through an innovative product and service offering.

### First class security...

Safety and security is seen by Singapore Airlines as a top priority. As a sign of this commitment and with a security policy of "zero lapses", Singapore Airlines decided upon the advanced CEM AC2000 SE (Standard Edition) access control system to secure its operations at multiple sites throughout Changi Airport, Singapore. Hundreds of CEM S600s intelligent card readers supporting DESFire smartcard and fingerprint biometrics were installed to provide a high level of sophisticated security.

## CASE SUMMARY

**Location:**

Changi Airport, Singapore

**System:****CEM:**

AC2000 SE (Standard Edition)  
S600s Card Readers

## Integration...

Going beyond access control, CEM provided Singapore airlines with a reliable and fully integrated Building Security System that included links to Singapore Airlines Human Resource SAP system, an interface with the existing Visitor system and digital CCTV/DVR systems integration. As a further means of integration CEM also provided the ability to personalise DESFire smart cards on behalf of the client, creating a “one card” solution for various applications including access control.

## All security links secure...

To ensure high security at every link in the security chain, the building security system featured distributed intelligence at all layers of the system design, from sub-system level using CEM S9020 controllers, right down to intelligence at the door, using the S600s reader with an onboard database and embedded DESFire technology.

The S600s reader proved ideal for Singapore Airlines with its ability to support multiple card technologies. With the airline using existing MiFare cards and looking to introduce DESFire cards gradually, the S600s allowed both technologies to be used simultaneously, providing a convenient upgrade path for the migration to high speed, high security DESFire technology.

Creating a fourth level of security and eradicating the risk of weak links at card level, CEM also conducted hardware development to embed the DESFire encryption code into the S600s readers directly, with diversified keys unique to both the card and the client. With the introduction of a smart card solution, Singapore Airlines has embraced the Singapore

National Authentication Infrastructure (NAI) platform in their endeavour towards a common biometrics identification programme. As such, fingerprint biometrics will continue to be rolled out throughout sites with the future goal of encrypted fingerprint and data secure on-card.

As an added guarantee of “zero lapses”, Singapore Airlines also chose failover dual redundant servers.

## CCTV/DVR Integration...

CEM provided integration with multiple DVR (Digital Video Recording) systems installed throughout Singapore Airline’s sites at Changi Airport, including integration with Pelco digital DVR. Using the CEM AED (Alarm Event Display) application as an interface, integration was achieved using access control alarms to automatically trigger DVR recording; with live and/or pre-recorded CCTV/DVR coverage instantly available to security personnel from a single graphical interface.

## Visitor/SAP Interface...

CEM conducted software development to create interface links to both Singapore Airlines existing Lotus Notes Visitor application and the SAP Human Resource system. Seamlessly integrating with existing application infrastructure, CEM developed batch file interfaces to transfer data from these existing systems onto the AC2000 SE server.

For visitor integration, CEM created a VNS software link, with batch files of visitor data (including visitor name and Singapore NRIC identity/passport number) transferring to the access control server at regular intervals. As a more enhanced, comprehensive approach to visitor management, Singapore Airlines also chose the CEM AC2000 Visitors module with

customised screen designs, which building on the Lotus Notes application data offers features such as temporary visitor ID badging, assigned card wizard, allocated escort/approver department record e.t.c.

For SAP Human Resource integration, CEM developed a similar interface to that of visitors, with batch files of personnel information automatically networking to the AC2000 server daily. As ID cards for new staff are required quickly, a real time polled interface was also developed with CEM designing a new XML application to query and poll “real time” personnel information from SAP for immediate card issue. Acting as an instantaneous link between SAP and AC2000, the XML application allows ID staff to issue cards 24/7 via the AC2000 personnel application. Cosharing data and networking with SAP, the access system is also programmed to transfer daily all personnel images captured that day; resulting in the extraction and co-sharing of data via one operational process.

As a further enhancement, the CEM batch interface builds the complex MRZ (Machine Readable Zone) strings commonly used on passports and stores them in the AC2000 database so that they can be easily printed on Singapore Airline passport style ID cards. Using several card formats such as temporary, term or contractor passes and with thousands of employees, Singapore Airlines has different badge design permutations with personnel card privileges and expiry date predetermined by a personnel crew indicator; Non Flying Staff, flight Crew and Cabin Crew.

### Thinking global, acting local...

As a continuation from the AC2000 SE system at Changi Airport sites, Singapore Airlines now has future plans to roll out the system on a worldwide basis.