



## Top Awards for UMIST Security Students

Three top computer security students from UMIST (University of Manchester Institution of Science and Technology) in the UK, picked up the Smart Card News Industry Awards last week at the university's graduation ceremony.

Gavin Ramsey (pictured) collected the first prize of £300 for his paper on the use of Smart Cards in a University Environment. The runners up, who both received cheques for £100, were Kristian Graney and Richard Freeman.

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**SCN's Managing Director, Patsy Everett, pictured with the UMIST award winners and judges of the Smart Card News Industry Awards**

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### Collector's Corner

*Unfortunately we are not running a Collector's Corner promotion this month as we were let down by a supplier at short notice. We apologise for any disappointment caused. Next month we will feature the Nottingham City Card, from Touch.*

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 Telephone : + 44 (0) 1273 515651 • Facsimile : + 44 (0) 1273 516518 • General Enquiries : scn@pavilion.co.uk ISSN 0967 196X

**Managing Director Patsy Everett** patsy@smartcard.co.uk • **Editor Jack Smith** • **Technical Advisor Dr David B Everett**

**General Manager Tara Lavelle** tara@smartcard.co.uk • **Marketing Manager Albert Andoh** albert@smartcard.co.uk  
**Graphic Designer David Lavelle** david@smartcard.co.uk • **Customer Support Amanda Pearce** amanda@smartcard.co.uk

**Russian Agent : Alex Grizov Recon Company "Sport Hotel" 5th Floor Leninsky Prosp., 90/2 Moscow 117415 Russia**  
 Telephone : +007 095 131 92 92 • Facsimile : +007 095 131 92 65 • e-mail : recon@ropnet.ru

**Asian Agent : J Clark Telephone : +852 2987 8737 • Facsimile : +852 2987 8732 • e-mail : jvclark@asiaonline.net**

**India Correspondent : Shailaja V.R. e-mail : uipai@md2.vsnl.net.in**

**Editorial Consultants Dr Kenneth Ayer • Peter Hawkes • Simon Reed • Robin Townend**

**Printed by DAP (Sussex) Ltd. Telephone : +44 (0) 1273 430430**



### Don't Forget!

Our Website containing daily News On-Line, and information about the full range of SCN services, can be found at the following address: [www.smartcard.co.uk](http://www.smartcard.co.uk)

## Smart Card News Industry Awards

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Next year the awards will be made to the students who come up with the most innovative application for a multi-application Smart Card.

The Department of Computation at UMIST will be celebrating its 30th year in 2001 and is now the largest department of computing in the UK in numbers of students taught and graduating. UMIST graduate approximately 2% of all computing/IT students, and these students are consistently ranked top in annual employer surveys. According to a survey undertaken by The Sunday Times UMIST graduates are the highest paid.

UMIST enjoys strong links with industry and commerce for research collaboration and many successful spin-off companies have been launched through academic research. KSS Group Plc is one, and recently floated for more than £100m on the Official List of the London Stock Exchange. KSS provides decision support software for blue chip clients in petroleum, retail, telecommunications and banking sectors.

Dr Colin Walter is senior lecturer in the Computer Security and Cryptography Department at UMIST. This department was formed two years ago in response to industry/commercial drivers such as Internet transactions, trust concerns, Smart Card development and data leakage.

### Contact

- **Fiona Butler** Industrial Liaison Officer, UMIST  
 ☎ +44 (0)161 200 4487  
 ✉ F.Butler@co.umist.ac.uk
- **Patsy Everett** Managing Director, Smart Card News Ltd  
 ☎ +44 (0) 1273 515651  
 ✉ patsy@smartcard.co.uk

## Smart Card News Expands

Smart Card News has moved to new offices. The millennium has seen the growth of SCN as the leading Smart Card industry news service. The on-line services, as well as the monthly newsletter, remains a favourite with the Smart Card industry.

Please note our new telephone number:

☎ +44 (0)1273 515651

## SCN World First in Publishing

A series of technical articles in Smart Card News (SCN), our industry-leading newsletter, is creating a breakthrough and a world first in publishing with a "hands-on" tutorial on the fast emerging technology of multi-application Smart Cards.

The series of articles explore the concept of Smart Card virtual machines, the specifications surrounding their use and, in particular, the Visa Open Platform. They also examine the main product families (Java Card, MULTOS and Smart Cards for Windows) and the real products based on these specifications. Importantly, they review the security requirements for segregating the applications and also for dynamically loading (and deleting) applications on the card when it is in the field.

The tutorial, written by Dr David Everett, an internationally recognised authority on Smart Cards and security issues and SCN's Technical Advisor, explains how to prepare a simple application for a multi-application Smart Card. In particular, the tutorial will demonstrate the loading, installation and operation of the application.

To enable readers to follow this process, SCN is making available a development toolkit with a number of different multi-application cards. The first kit, available now, consists of a Schlumberger Java card V2.1, a Towitoko Smart Card reader (the Gemplus PCMCIA reader is also available as an optional extra) and a CD ROM containing the software to manage the card application life cycle.

The software was developed by Jon Barber, from Smart Card News Ltd's associated company Micro-expert Ltd, who is now working with Dr Everett to guide participants through this part of the multi-application briefing. They also intend to set up a help desk operating through SCN's web site:

✉ [www.smartcard.co.uk](http://www.smartcard.co.uk)

This development kit, costing £250 / US \$400 (plus VAT where applicable), is available by e-mail at:

✉ [scn@pavilion.co.uk](mailto:scn@pavilion.co.uk)

Other cards and software upgrades will be available as the tutorial progresses.

Dr Everett said: "The objective is not to teach Java or any other programming language, but to explain a few chosen modules to gain experience in the concepts behind setting up and using a multi-application Smart Card."

## Hospital Smart Cards for Parking

Addenbrooke's hospital in Cambridge is one of the UK's most respected medical establishments. With a staff in excess of 5,500 and over 5,000 staff from other organisations based on their site as well as 280,000 outpatients per annum, 25,000 day cases and 44,000 inpatients, administration of car parking and employees could be a nightmare.

Public Access Terminals (PAT) have installed a card system that effectively monitors and allows authorised access to car parks and certain departments depending on group or category, rights and privileges.

Cards are delivered blank except for a serial number with the chip, non-programmed, embedded. The serial number serves to provide the identifying link between the card and the individual, so the PAT system will recognise each card from the serial number and enable unique rights and privileges to be assigned to each cardholder.

This means that a member of staff working in a certain department will have an access control card enabled to allow unimpeded access to that block whereas access will be denied to other members of staff whose presence is not essential. The moment a person leaves employment, their access rights can be instantly revoked, making for increased safety and security.

### Contact

- **PAT sales**
- ☎ +44(0)191 229 9000
- 📧 [www.pat.co.uk](http://www.pat.co.uk)

## Upgrade Plan to Acquire Pathways

Upgrade International Corporation says it has signed a letter of intent to acquire 100% of The Pathways Group in an all-share transaction. The acquisition is subject to further negotiation and shareholder approval.

Daniel Bland, President of Upgrade International said: "We believe that the acquisition of The Pathways Group is a natural fit with our group of companies. Efornet's Electronic Vault Operating System (EVOS), Centurion's EPRIM Rx and National Cache Card's Instacache complement and substantially enhance the software applications already developed by Pathways."

The Pathways Group designs, markets and services custom Smart Card applications and services.

### Contact

- **Daniel Bland** Upgrade
- ☎ +1 206 903 3116
- 📧 [ir@upgd.com](mailto:ir@upgd.com)

## "CB" and Proton Join CEPSCO

Groupement des Cartes Bancaires "CB" and Proton World have joined CEPSCO, LLC, the organisation formed to manage the on-going development and administration of the Common Electronic Purse Specifications (CEPS) for the interoperability of electronic purse schemes worldwide.

They join existing members: CEPSCO Espanola A.I.E., EURO Kartensysteme, Europay International, and Visa International.

The first implementation of CEPS, planned for early 2001, is likely to be in Europe where the introduction of the euro has created added impetus to agree on a common specification.

### Contact

- **Jessica Epple** Manning, Selvage & Lee
- ☎ +1 415 364 3847
- 📧 [jepple@mslpr.com](mailto:jepple@mslpr.com)

## Cryptoflex 16K Launched

Schlumberger has launched a 16K bytes version of its Cryptoflex Smart Card, giving the ability to store multiple passwords and certificates and enabling an increased number of secure applications and cryptographic services.

Called Cryptoflex 16K, the card works with all major PKI (Public Key Infrastructure) providers, including the PKI integrated into Windows 2000. It enables multiple applications that do not need to share keys and can be used with Microsoft, Netscape, Entrust and a host of applications.

Schlumberger says that enhanced 2048-bit RSA encryption makes it the ideal portable ID device for securing B2B and B2C e-commerce transactions and network access.

### Contact

- **Emmanuelle Saby** Schlumberger Test & Transactions
- ☎ +33 (0)1 47 46 71 04
- 📧 [hinze@montrouge.tt.slb.com](mailto:hinze@montrouge.tt.slb.com)

## AutoSmart Car Card Project

Supercom, an Israeli high-tech company, has announced that its US subsidiary, Supercom Technologies, has signed a contract with AutoSmart of Fairfax, Virginia for a comprehensive contactless Smart Card system for cars which AutoSmart will offer to its customers worldwide.

The OTTOSMART card will include information such as: manufacturers and technical data, specifications, colour, key code, engine numbers, warranty information, recalls, insurance, registration and repairs, maintenance and service history and ownership (past and present).

It will function as a "car ID" and provide proof of the car's history and enhance the confidence in the car value when buying or selling a second-hand car. The card will be distributed by automobile dealerships throughout the US, Canada, Europe and the rest of the world.

Initial revenues for Supercom will be \$2 million for database software development, infrastructure and first supply of Smart Cards and card readers.

### Contact

- **Haim Fishler** Supercom  
☎ + 972 9 767 4166  
🌐 [www.supercom.co.il](http://www.supercom.co.il)

## Cholesterol Monitor Roll-out

Lifestream Technologies has agreed with National Distribution and Contracting (NDC) to distribute its Lifestream Cholesterol Monitor to healthcare professionals. The hand-held device can test cholesterol, inexpensively and with laboratory accuracy, in three minutes using one drop of blood.

The data is downloaded from the testing device to a Smart Card and transferred over the Internet to a closed encrypted Web site via proprietary software, Privalink. Within minutes, physicians and pharmacists are provided with patients' cholesterol data and risk profiles for heart disease.

The company is currently positioning to make the testing system available to the general public in the third quarter of this year.

### Contact

- 🌐 [www.Lifestreamtech.com](http://www.Lifestreamtech.com)
- 🌐 [www.ndc-inc.com](http://www.ndc-inc.com)

## University Smart Cards

Firststar Bank has partnered with Spalding University to offer students, faculty and staff members the Spalding University Smartcard which will be phased in throughout the summer. It will initially be used as an ID card and for paying for campus meal plans, as a library access card and a Firststar Bank ATM and debit card. Soon it will be enhanced to include use at the University bookstore and at on-campus vending machines, copy and laundry machines and for other "petty cash" needs.

Users will have access to free on-line banking direct from their PC or via the Internet. The ATM function works on and off campus.

### Contact

- **Steve Dale** Firststar Corporation  
☎ +1 414 765 4455
- **Laura Naff** Spalding University  
☎ +1 502 585 9911 x2238

## Datakey Joins Phaos Program

Datakey has joined Phaos Technology Corporation's PKCS 11 Partner Program for the Java platform. Tim Russell, Vice President and General Manager of Datakey's Information Security Solutions business unit, explained that Java developers can now take advantage of Datakey's 32K Smart Cards (with FIPS 140-1 Level 2 certification) to provide two-factor security and Smart Card-based cryptographic functions for their Java applications.

### Contact

- **Phaos Technology**  
☎ +1 212 514 6514  
📧 [info@phaos.com](mailto:info@phaos.com)

## SESAMES Awards

Three SESAMES Awards presented during the Cartes 2000 conference and exhibition in Paris (from 24-26 October) will focus on the best technological innovation, the best application in all fields and, for the first time, the most innovative solution to secure transactions on the Internet.

### Contact

- **Hélène Tsoungui • Nathalie Boric**  
☎ +33 (0)1 49 68 52 61  
📧 [cartes@exposium.fr](mailto:cartes@exposium.fr)

## Eight Million Card Order for ORGA

ORGA has won a contract worth over £2 million to supply up to 8 million Smart Cards to Boots the Chemists and will be the sole supplier of the Boots Advantage cards for a minimum of three years.

Some 12 million Advantage cards have already been issued. The scheme provides reward points at a rate equivalent to 4 pence for every Pound spent at Boots the Chemists, Boots Opticians and Boots Dentistry.

ORGA will be working in partnership with loyalty card services provider Thames Card Technology, who will be providing a bureau service for the personalisation of the cards on behalf of Boots.

### Contact

- **Graham Carson** ORGA
- ☎ +44 (0)118 377 6000
- ✉ gcarson@orga.co.uk

## New Keyboards from Cherry

New fully programmable card reading keyboards with a built-in touchpad have been announced by Cherry Electrical Products. They are designed to meet the increasing demand for data entry products featuring integrated Smart Card, magnetic swipe card and barcode readers.

The Smart Card interface consists of a vertically mounted processor card reader and up to four internal readers for plug-in Smart Cards fitted to the underside of the keyboard. Data can be read from, or written to any card that complies with ISO 7816.

### Contact

- **Cherry Electrical Products**
- ☎ +44 (0)1582 763100
- ☎ +44 (0)1582 768883

## Canadian Patent for PC Pay

MerchantOnline.com, through its subsidiary Innovonics, has been granted a patent for its PC Pay card-swipe encryption device which is now patented in over 50 countries. The swipe device plugs into home or office PCs to accept ATM, debit, credit and Smart Cards. Card data is encrypted within the secure device before entering a computer, offering a higher-level of security.

Innovonics received Patent No. 2,185,697 from the Canadian Patent Office for "Methods and apparatus for interfacing an encryption module with a personal computer."

### Contact

- **Kevin Spencer** MerchantOnline.com
- ☎ +1 888 369 9976

## Hypercom ICE 6000 Terminal

Hypercom Corporation has launched the ePic ICE 6000 Smart Card payment terminal in the UK. Boasting the industry's first colour VGA touch-screen graphics display screen, the terminal supports a full range of electronic payment transactions including credit, debit, charge, retailer and loyalty card processing.

Noting that UK banks are now issuing chip cards, Rob Mali, Hypercom Europe's Managing Director, said: "Large retailers with integrated EPOS/EFTPOS solutions are currently unable to process these new chip based cards. The ICE 6000 provides these retailers with a bank certified payment peripheral, which can be attached to their EPOS registers, handle Smart Cards correctly and prevent fraudulent transactions occurring."

### Contact

- **Mark McMurtrie** Hypercom Europe
- ☎ +44 (0)1483 718600
- ✉ mmcmurtrie@hypercom.com

## Approval for Set-Top-Box

Taiko Electronics (UK) has announced that its Digital Smartmodule set-top-box (STB) has gained approval by NDS and Sky, and the company says it is fast becoming the standard Smart Card connector combination for satellite, terrestrial, cable and digital television providers.

The STB is designed to connect the consumer to any digital supplier. Taiko says that the combination of a Smartroller connector, which reads double or single thickness cards, and a small reversible Taiko Smart-card connector which reads a Smart Card whichever side is presented, provides a secure connection with repeat usage.

### Contact

- **Paul Fisher** Taiko Electronics (UK)
- ☎ +44 (0)1865 771717
- ✉ tuk.sales@btinternet.com

## Bull Creates Evidian Subsidiary

Bull has created a new subsidiary, Evidian (formerly BullSoft software division of Bull) to deliver secure e-infrastructure management solutions.

Headquartered in Billerica, Mass., Evidian is an Internet-focused software company that enables customers to deploy e-business strategies. With full research, development and marketing resources, it begins "start-up" operations with more than \$60 million in annual revenue, over 600 brand name customers, 70-plus partners and more than 400 employees.

Evidian is led by an international management team, with BullSoft President Henry Ancona continuing as President and CEO and retaining his executive staff. Evidian plans to accelerate growth through strategic equity-based alliances, which will drive new channels and products while helping to attract and retain top international talent.

"Bull had decided more than two years ago to form a separate company to focus on delivering secure Internet solutions to help enterprises and administrations make the transition to e-business," said Guy de Panafieu, Bull's Chairman and CEO. "With the OpenMaster family of products already developed by Bull and successfully introduced to the marketplace, the next step in our strategy was to run the business on a true independent software vendor (ISV) model, which we have accomplished."

### Contact

- **Bill Bradley** Bull (US)
- ☎ +1 978 294 5812
- ✉ bill.bradley@bull.com

## EMV Pilot in the Middle East

Oberthur Card Systems is to supply seven major banks in Lebanon with a multi-application Smart Visa debit/credit card which can support both loyalty and e-commerce applications. The card will be based on Europay, MasterCard and Visa (EMV) specifications and will be piloted for three months followed by total migration within a year.

The pilot is part of a major roll-out programme led by Credit Libanais as part of an established association comprising six other major banks.

### Contact

- **Stéphanie de Labriolle** OberthurCS
- ☎ + 33 (0)1 41 25 28 42
- ✉ s.delabriolle@oberthurcs.com

## Top-ups for Prepaid Mobiles

SmartAxis has announced commercial agreements with SmartPrepay their latest Merchant Service Provider (MSP), targeting the prepaid mobile phone marketplace.

SmartPrepay is currently building an operational service that will provide a secure way to recharge a prepaid mobile phone over the Internet, using Smart Cards. SmartAxis will provide e-purse card payment services, as well as the facility for loading cash onto customers' cards.

### Contact

- **Adrian Weston**
- ☎ +44 (0)1273 506655
- ✉ pr@smartaxis.com

## CSI Acquires Rights for Reader

Cable Satisfaction International (CSI) has acquired the worldwide distribution rights for a prepaid Smart Card reader which will enable customers to benefit from television broadcasting services, be it basic or speciality cable television, used daily by channel or event.

The reader was developed by SetCom Electronica SA in partnership with Telexmax, a wholly-owned subsidiary of Csii.

Ing Jorge Calheiros, SetCom's President, said: "This system allows users to control how much they spend on the services used - pay TV, pay-per-view, Internet and telephony - thereby avoiding any surprises at the end of the month."

### Contact

- **Real Laflamme** Csii
- ☎ +1 450 468 4485

## Personalisation from Burall

Burall InfoCard has announced that it can now personalise any contact or contactless chip card. The company says it has the means to print user ID, photographs, bar codes and other variable data on blank or pre-printed plastic cards and will also sell software and personalisation systems to end users.

### Contact

- **Michael Moorey** Burall InfoCard
- ☎ +44 1945 468100
- ✉ bil@burall.com

## New CEO for Gemplus

Gemplus has appointed Antonio M Perez, previously President of Consumer Business and Digital Media Solutions at Hewlett Packard, as the Group's President and Chief Executive Officer.

He will provide executive oversight on Gemplus operations around the world, building an organisational framework to support and sustain the Group's accelerating worldwide growth. He will also be responsible for designing and driving the Group's strategic direction.

The new CEO has asked Bertrand Cambou, Gemplus COO, to assist him in the day-to-day managerial aspects of his role within the newly created Office of the President.

Marc Lassus remains Chairman of the Board. He will coordinate external acquisitions, in cooperation with Senior VP of Strategy and Acquisitions Gilles Michel, and through Gem Ventures, Gemplus' strategic venture capital initiative, headed by Jacques Seneca.

Marc Lassus, said: "Gemplus core business is seeing explosive growth driven by the wireless market. Today we are a truly global enterprise and we are an evolving business, increasingly focusing on software and end-to-end customer solutions."

### Contact

- **Severine Percetti** Gemplus  
☎ +33 (0)4 42 36 67 67  
✉ Severine.percetti@gemplus.com

## Two Million Proton Card Order

Bull Smart Cards & Terminals is to supply two million reloadable electronic purse cards based on Proton technology to Union des Banques Suisses, Credit Suisse and local banks.

The Swiss Cash card began four years ago and there are now six million cards in use. About one-third of the cards are renewed each year by the programme's partner banks, enabling users to access the latest functions and technological progress.

### Contact

- **Catherine Vincent** Bull  
☎ +33 (0)1 39 66 42 63  
✉ catherine.vincent@bull.net

## Japanese Version of ActivCard Gold

ActivCard SA announced in Tokyo it has released ActivCard Gold version 1.2J localised to Kanji via double-byte enabled client software, providing full support for Entrust, Baltimore Unicert, Microsoft Windows 2000, Novell eDirectory/NMAS and Sun Microsystems Java Card.

"ActivCard Gold localised for the Japanese language will help us to meet customer demand for digital identity solutions in almost every segment of the Japanese market," said Clifton Ashley, Vice President of Sales for Asia-Pacific at ActivCard.

### Contact

- **Amanda Richardson** AxiCom  
☎ +44 (0)20 8600 4608  
✉ amanda@axicom.com

## New Features for Scratch Cards

Oberthur Card Systems has introduced two new features for pre-paid mobile phone scratch cards. The first enhancement is the unique security printing technology developed by Oberthur which can match by colour and pattern the scratch panel and card background. This, says the company, significantly reduces fraud risk as the panel cannot be scratched and re-panelled.

The second, is an extra "scratch and win" panel (optional) for prizes or additional credit for mobile services. This panel enables operators to add value to their pre-paid services and helps to reduce churn.

### Contact

- **Stephanie de Labriolle** Oberthur CS  
☎ +33 (0)1 41 25 28 42  
✉ s.delabriolle@oberthurcs.com

## Security Evaluation Centre

A Centre for the Evaluation of Information Technology Security (CESTI) has been set up within the Laboratory for Electronics, Technology and Instrumentation of the Atomic Energy Commission in Grenoble. The new centre will carry out the technical analyses necessary for the certification of secure Smart Cards.

### Contact

- **Rob Williams** French Technology Press Bureau (for CESTI)  
✉ rob.williams.ftpb@cfme-actim.com

## Launch of i.Life Smart Card

Cable & Wireless Hong Kong Telecom (C&WHKT) and the Hongkong and Shanghai Banking Corporation (HSBC) have jointly launched i.Life Card, a multi-application Smart Card for secure on-line shopping and electronic transactions. Over 50,000 cards will be issued initially.

Credit and debit card functions, International Calling Service, Mondex electronic cash and chip-based e-commerce applications will run on the MULTOS Smart Card operating system.

Aloysius Lee, Executive Vice President, Group Sales, Marketing and Product at Cable & Wireless HKT, said: "The launch of i.Life Card is an initiative by both companies to bring in key enablers for e-commerce in the local business-to-consumer market. The B2C market in Hong Kong is expected to generate nearly US \$900 million of transactions by 2003."

### Contact

#### ■ Gareth Hewett • Vinh Tran

The Hongkong and Shanghai Banking Corporation

☎ +852 2822 4929 / 2822 4924

#### ■ Mickey Shiu Cable & Wireless HKT

☎ +852 2888 6709

## GSA Contract for Litton/PRC

Centurion Technologies, a subsidiary of Upgrade International Corporation, developers of Smart Card based software applications for health, education and government market segments, has announced that Litton/PRC, Inc. with Centurion Technologies acting as a partner/subcontractor, is one of the five contractors selected for the General Services Administration (GSA) Smart Access Common ID Card program.

They will initially focus on the healthcare government market, utilising Smart Card technology for portable medical record access and security control.

Centurion Technologies is finalising roll-out of EPRIM Rx, a fully integrated physician-based prescription ordering system that accesses patient medical records stored on Smart Cards. The card stores detailed information profiles on patients, providers, medications, allergies, immunisations, insurance plans, medication, and other critical data.

By including an e-purse solution on the Smart Card, deductibles and co-pays can be automatically deducted from the stored cash value, instead of chasing payment from either the insurance company or private insurer.

## ORGA Selected as Subcontractor

Logicon, one of five contractors recently awarded a contract by the GSA to support the Smart Access Common ID Card program, has selected ORGA Card Systems as a subcontractor. ORGA is responsible for manufacturing and supplying the multiple-application chip cards which may be used in this development effort, and will additionally interface and consult with a select group of partners, headed by Logicon, to ensure overall project success.

## Datacard Systems and Services

Datacard Group has announced it has been selected as a solutions partner to the prime contractors participating in the GSA program.

Datacard Group will offer a wide range of card personalisation and management systems, including multi-application card life cycle management, cardholder enrollment systems, card personalisation systems, photo ID printers, biometrics capture devices and onsite badging services.

Card life cycle management systems enable card issuers to manage and update large populations of multi-application Smart Cards. Cardholders and card issuers can remotely add, upgrade, delete or block applications using Internet or wide area network (WAN) connections.

Instead of re-issuing cards, card issuers can quickly and easily update existing cards. In addition, if a card is lost or stolen, card issuers can replace it with the exact same applications, even if they were added to the card via post issuance processes.

### Contacts

#### ■ Upgrade International Corporation

☎ + 972 9 767 4166

#### ■ Rich Martinez ORGA Card Systems

☎ +1 610 993 9810, ext. 231

✉ [rmartinez@usa.orga.com](mailto:rmartinez@usa.orga.com)

#### ■ Frederik ten Sythoff Datacard

☎ +1 952 988 2907

✉ [frederik\\_ten\\_sythoff@datacard.com](mailto:frederik_ten_sythoff@datacard.com)

## First 64K Smart Card Controller

Infineon Technologies has introduced the SLE66CX640P, the latest member of its 66Plus series of 16-bit Smart Card controllers.

The SLE66CX640P enables rapid on-chip application development and is aimed at high-end GSM applications, mobile electronic commerce, banking and future multi-application cards.

The device's 64K bytes EEPROM capacity enables fast track prototyping that allows software developers to write a highly secure Smart Card application without waiting for a developmental ROM mask. After applications have been tested by developers, production chips can be manufactured with a range of 8 to 64K bytes of EEPROM and 64 to 136K bytes of ROM with the operating system, such as Microsoft Windows for Smart Cards, embedded in the secure ROM.

The Microsoft Windows for Smart Cards operating systems will be the first to take advantage of this quick application development environment.

The SLE66CX320P is available now in volume quantities. The CX640P is currently sampling, with volume production expected in early Q3.

In quantities of 100,000, the SLE66CX320P is priced at US \$4.20 (Euro 4.65) each and the SLE66CX640P is priced at US \$6.55 (Euro 7.25) each.

### Contact

- **Monika Sonntag** Infineon
- ☎ +49 89 234 24497
- ✉ monika.sonntag@infineon.com

## Microsoft WfSC Toolkit 1.1

Microsoft has announced the release to manufacturing of the Windows for Smart Card Toolkit 1.1 with support for GSM. The new toolkit allows GSM operators and mobile equipment manufacturers to use familiar Microsoft Windows operating system-based tools to create customisable and enhanced Smart Card solutions, including mobile commerce solutions.

Toolkit 1.1 will shortly be available free of charge from the Microsoft Smart Card Web site at:

✉ [www.microsoft.com/smartcard/deploy/](http://www.microsoft.com/smartcard/deploy/)

## Eastern Buys Greenwald

The Eastern Company has agreed to purchase the assets of Greenwald Industries and Greenwald Intellicard, both subsidiaries of PubliCARD. The cash purchase price of the two Greenwald subsidiaries is approximately \$22.5 million.

Greenwald is a leading provider of coin meter products used primarily in the commercial laundry industry. With its acquisition of Intellicard in 1998, it extended its products to include Smart Card payment systems while Greenwald Intellicard's products include Smart Cards, card readers and money transfer stations. The Eastern Company manufactures and markets locks, latches, fasteners and other security hardware.

### Contact

- **Leonard F Leganza** The Eastern Company
- ☎ +1 203 729 2255, ext. 105

## Learn2.com Alliance With Compaq

Learn2.com, a provider of e-learning solutions, is partnering with Compaq Computer Corporation to offer e-learning to Compaq's customers.

The agreement includes a custom library of multimedia content, deliverable over the Internet, that will be distributed on co-branded Learn2.com Smart Cards. Consumers can purchase Compaq Presario On-line University Library courses when they order Presario computers over the phone, on Compaq's consumer Web site and in retail stores.

### Contact

- **Judith A Pirro** Investor Relations
- ☎ +1 914 872 2061

## Oberthur Partners with CS

OberthurCardSystems is partnering with CS Communication et Systemes to offer a secure end-to-end solution for e-business using OCS's AuthentIC card supported by CS' PKI (Public Key Infrastructure).

### Contact

- **Stéphanie de Labriolle** Oberthur CS
- ☎ + 33 (0)1 41 25 28 42
- ✉ s.delabriolle@oberthurcs.com
- **Catherine Dedieu** CS Communication & Systemes
- ☎ + 33 (0)1 53 67 22 65
- ✉ catherine.dedieu@c-s.fr

## Donald Davies UK Inventor of Packet Switching

Dr. Donald W Davies CBE FRS died on May 28th 2000 aged 75. A great man in his own right, he inspired and befriended many, and was involved with Smart Card News since its inception in 1992.

Through a long career in the scientific civil service at the National Physical Laboratory, Teddington, and after retirement, he made many outstanding contributions to the design and application of digital computers, data communications and computer network security. Internationally he is best known for the 1965 invention of Packet Data Switching. Within two years this self-routing method for messages was adopted by ARPA in the USA. ARPA's designers used it as the transport mechanism of the ARPANET. ARPANET has since evolved in the Internet.

Donald's obituaries in the national press list some of his other achievements. Much less well known was his work at NPL on Smart Cards in the 1980s.

(For the full text of Peter Hawkes' obituary to Donald please refer to our website - [www.smartcard.co.uk](http://www.smartcard.co.uk))

## Gemplus and Be Team

Gemplus and Be Incorporated have announced support for Gemplus' GemCore Smart Card reader technology for BeIA, Be's software platform for Internet appliances to allow any Internet appliance vendor to easily offer Smart Card services to their customers. Introduced last February, BeIA is a software platform for appliances that deliver information and entertainment over the Internet.

### Contact

- **Tarvinder Karsandh** Gemplus  
☎ +1 650 654 2917  
✉ [tarvinder.karsandh@gemplus.com](mailto:tarvinder.karsandh@gemplus.com)

## Funtastic Expands Fun Card

The Pathways Group has signed an agreement with Funtastic Travelling Shows to expand the carnival's use of Pathways' Smart Card midway program through the Summer and Autumn 2000 seasons. Funtastic intends to extend usage of the Smart Cards to larger, higher-volume venues among the carnivals it operates. The new agreement also calls for Pathways to supply 14,000 additional Smart Cards, up to 75 additional terminals and the necessary support services for the hardware and software.

"Pathways' Fun Card has enhanced our revenues in addition to making our lives much simpler," said

Funtastic CEO Ron Burbach. "More important, our customers have more time to enjoy our carnivals." Customers use cash to place a value on the reloadable card. Then, with terminals installed at each ride, game, and concession booth, customers use the card to gain admission or purchase refreshments. Transactions that involve Smart Cards remove the need to count thousands of coins and long streams of tickets at the end of the day.

### Contact

- **Charles W Dunn** The Pathways Group  
☎ +1 707 546 3010  
✉ [cdunn@pathwaysgroup.com](mailto:cdunn@pathwaysgroup.com)

## ACG acquires 51% of Logos

ACG AG Wiesbaden has acquired a 51% holding in Logos Smart Card A/S headquartered in Lyngby, Denmark. This software engineering corporation and producer of Smart Cards holds a leading position in the GSM and WAP market.

Following an equity stake in Bluefish Technologies AG in May, this recent move strengthens their GSM and WAP product strategy and boosts their Smart Card marketing segment. In addition ACG hold exclusive worldwide marketing rights in the GSM operating system flashCOS GSM developed by Logos Smart Card.

### Contact

- **David Franklin** ACG (UK) Ltd  
☎ +44 (0)1865 481491  
✉ [dfranklin@acg.de](mailto:dfranklin@acg.de)

## Cubic Card Impresses Chinese

Guangzhou Metro Corp. officials are reported to be impressed with Cubic Transportation System's recent demonstration of contactless Smart Card technology for the Metro transit system - the first automated ticketing system in mainland China. Cubic utilised its contactless GO CARDS and readers for all 16 Guangzhou Line 1 stations for the demonstration.

"The GMC officials were most impressed by the higher level of passenger convenience and faster throughput that can be achieved using contactless technology," said Steve Shewmaker, Senior Vice President of worldwide business development, Cubic Transportation Systems.

### Contact

- **Kelly Williams** Cubic Corp.  
☎ +1 858 505 2378  
✉ [Kelly.Williams@cubic.com](mailto:Kelly.Williams@cubic.com)

## France Rolls-out m-Commerce

France Telecom Mobiles (FTM) has commercially introduced the world's first high-volume debit/credit mobile commerce service following a successful pilot. The service is called Paiment "CB" sur mobile, and FTM expects one million subscribers before Christmas 2000.

Combining Oberthur Card Systems' SIMphonIC card, Carte Bancaire cards and dual slot mobile phones, the service enables users to purchase and pay for goods and services, including their France Telecom, electricity and gas accounts. They can also make purchases via the Internet or a fixed-line phone and pay via their mobile phone using a Carte Bancaire card.

Once the user confirms a request by verifying the information on the phone's screen, the user inserts the Carte Bancaire into the dual slot phone and presses (or dials) the banking PIN code - as he or she would in a travel agency or a bookshop - and a request for payment is sent to the bank.

### Contact

- **Stephanie de Labriolle** Oberthur CS  
 ☎ +33 (0)1 41 25 28 42  
 ✉ s.delabriolle@oberthurcs.com

## Multiple Data Collection PC

To streamline data collection processes for logistics organisations such as the US Department of Defense (DoD) as well as for manufacturing and distribution companies, Intermec Technologies Corp., a UNOVA company, has introduced the 5023 Data Collection PC, the first handheld computer that reads virtually any data type used by the Department.

The PC reads bar codes, including linear codes such as Code 39 and Code 128, as well as 2D and PDF symbologies. It can also be equipped to read and write to radio frequency identification (RFID) tags and Smart Cards, eliminating the need for separate devices for these technologies.

Demonstration units of the 5023 Data Collection PC are available now and the product will start shipping to customers in September.

### Contact

- **Kathie Anderson** Intermec  
 ☎ +1 425 348 2799  
 ✉ kathie.anderson@intermec.com

## Hitachi launches new chip

Hitachi has launched its AE-Series (Advanced Engine) of Smart Card chips designed for use in high-end GSM and financial applications. The first chip to be released is the AE460 which has 64K bytes of memory and a 16 bit CPU to enable multi-applications. The AE-Series features new security, the Integrated Security Concept (ISC), which will be an integral part of the whole Smart Card design. The chip also features integrated sensors, distributed layout and protection against SPA/DPA attacks.

The AE460 is available in chip on tape, sawn or unsawn wafer, with shipments due from 4Q/2000.

### Contact

- **Hitachi Semiconductor (Europe)**  
 ☎ +49 0871 6840  
 ✉ info@hitachi-landshut.de

## Sonera Acquires iD2

Sonera Corporation has acquired full ownership of iD2 whose major shareholders are Schroder Ventures, Ericsson, Cisco, Reuters and SAP. Sonera will issue shares of Sonera as consideration and transfer the ownership of iD2 Holding AB to its wholly-owned subsidiary Sonera SmartTrust Ltd.

iD2, headquartered in Sweden, offers software for secure digital identification solutions on the Internet based on PKI (Public Key Infrastructure) and Smart Card technology. Sonera SmartTrust develops and provides solutions for wireless e-commerce.

### Contact

- **Harri Vatanen** Sonera SmartTrust  
 ☎ + 358 2040 3300  
 ✉ harri.vatanen@sonera.com
- **Bjorn Gustavsson** iD2  
 ☎ +46 8 775 5200  
 ✉ bjorn.gustavsson@id2tech.com

## 3GI and Microsoft Partner

Smart Card software developer, 3GI, has announced plans to deliver network and Internet security products which feature Microsoft's Windows for Smart Cards operating system.

### Contact

- **Mike Orr** 3GI  
 ☎ +1 703 922 4600

## Ascom Wins FF60m Paris Contract

A contract worth almost FF60 million has been won by Ascom Monétel to introduce contactless ticketing equipment at access control gates on all stations of the Paris public transport authority (RATP).

Around 2,000 gate controllers will be modified in the first half of 2001 so that they will be able to accept existing magnetic stripe tickets as well as the latest contactless Smart Cards.

### Ticketing System for Metz

Ascom has also landed a FF 11 million contract for the supply of a new ticketing system for the 150 bus fleet in the city of Metz, including the supply of 25,000 GTM Light contactless Smart Cards designed specifically for public transport.

The new system involves the use of 350 validators capable of handling magnetic and contactless tickets, a central processing system for ticketing data, and ticket vending machines for four offices and a hundred or so agents.

#### Contact

- **Claude Garoyan** Ascom
- ☎ +33 (0)4 75 81 41 14
- ✉ Claude.garoyan@ascom.fr

## BioNetrix to Support WfSC

BioNetrix Systems Corporation has announced that it will support Microsoft Windows for Smart Cards with its flagship product, the BioNetrix Authentication Suite.

“Windows for Smart Cards is an important development in the use of advanced authentication methods because it will catapult the acceptance and usability of Smart Cards in the marketplace,” said Trevor Hight Walker, Acting Vice President of Marketing for BioNetrix.

“The BioNetrix Authentication Suite is designed specifically to support and manage multiple authentication technologies - including Smart Cards and biometrics - to meet the ever-changing network security needs of organisations today.”

#### Contact

- **Melissa Sargeant** BioNetrix
- ☎ +1 703 734 9200
- ✉ msargeant@bionetrix.com

## Surfmiles and SmartAxis Team

Surfmiles, the new loyalty scheme that allows web-users to earn cash by shopping online, has teamed up with SmartAxis to offer members the opportunity to convert their Surfmiles loyalty points into electronic cash carried on a Smart Card. Surfmiles members can then use the electronic cash to purchase goods and services from any of the SmartAxis enabled e-merchants.

Surfmiles rewards its members with Surfmiles when they purchase goods and services online through one of the company's many partners including Amazon, Dell, Tower Records, Disney Store Online and CDNow. The other route to earning Surfmiles is through viewing advertising banners. Surfmiles are redeemable in units of 1500 (£15). When this number of units has been accrued, Surfmiles members will be able to download £15 onto their Smart Cards via SmartAxis.

#### Contact

- **Adrian Weston**
- ☎ +44 (0)1273 506655
- ✉ adrian@weston.com.pr

## PCBM Expands Paycheck Loans

Pinnacle Business Management (PCBM), which recently announced plans to become the first company in its industry to offer its customers access to their loans through the convenience, security and flexibility of Smart Cards, has received regulatory approval to open lending businesses in four new states.

The states of California, Indiana, North Carolina and Idaho have given PCBM the green light to do business. This brings the number of states in which PCBM has regulatory approval to nine, including Utah, Missouri, Louisiana, Kentucky and the firm's home state of Florida.

PCBM is the parent company of Fast PayCheck Advance of Florida, Inc., which specialises in making short-term loans secured by a customer's paycheck. The company operates four free-standing locations and more than 125 in-store service centers within its vendors' locations.

#### Contact

- **Bruce Hall** PCBM
- ☎ +1 877 877 9307
- ✉ bruce@pcbm.com

## Cubic and Keycorp Join Forces

Cubic Transportation Systems and Australian electronic commerce and Smart Card company, Keycorp Limited, are joining forces to deliver integrated payment solutions across Australia's transit and financial services markets, with the potential to expand joint service offerings to the broader global market.

Cubic and Keycorp have collaborated on a design which will introduce ticket sales functionality to the Keycorp terminal with the ticket digitally encoded on contact and contactless Smart Cards.

"Together, Cubic and Keycorp can offer a complete products and services portfolio, including Smart Card solutions, retail and transit payment terminals, web access devices, virtual payment networks, and e-commerce transaction solutions," said David de Kozan, Cubic Transportation Systems' Vice President, Strategic Planning.

While focusing initially on Australia, Keycorp and Cubic are eyeing opportunities to deliver their alliance-based solution on a global scale, including the United Kingdom, the United States, and the broader Asia Pacific region.

In the UK, Cubic is currently teamed with members of the TranSys consortium to deliver the Prestige project - London Transport's Smart Card-based ticketing system for the London Underground and the city's 30 independent bus operating companies.

### Contact

- **Kelly Williams** Cubic Corp.  
☎ +1 858 505 2378  
✉ Kelly.Williams@cubic.com

## Sega Smart Card Plan for Japan

Sega Enterprises is to introduce a new Smart Card for use in its network of amusement arcades throughout Japan. The entertainment company is partnering with Schlumberger e-Transactions Solutions in the project which is supported by Toppan Label Co.

It is planned to deploy the Smart Card system across "Entertainment stage net@" Sega's high-speed, high-capacity fibre optic network set to link all its amusement arcades. The system will provide membership verification and stored value credits to enable customers to access the vast store of digital contents. Charges for its use will be based on on-line time, and

a single Smart Card will be all that any subscriber needs to use the service.

### Contact

- **Emmanuelle Saby** Schlumberger  
☎ +33 (0)1 47 46 79 50  
✉ saby@montrouge.tt.slb.com

## Gemplus and SILA Agreement

Aether Systems has announced that its European venture with Reuters, SILA Communications, has signed a worldwide licensing agreement with Gemplus.

Under the agreement, SILA is to incorporate its compression software into a new Gemplus SIM card which will enable users to receive large volumes of data and some broadband services on their hand held devices.

Bo Kroll, President of SILA, said: "Our software utilises significant data compression allowing large amounts of data to be sent across the network in very small packages. The new SIM card from Gemplus decompresses and displays this information for the client."

The Java Card powered SIM card is based on a new chip with an initial capacity of 64K and supports SMS point-to-point and SMS cell broadcast as defined in GSM 11.11 and GSM 11.14. SILA will also assist in testing a prototype series of products utilising the SILA software and compatible SIM cards this year with "live" data on European GSM networks in the first quarter of next year.

### Contacts

- **Greg Abel** Aether Systems  
☎ +1 410 654 6400, ext 5189  
✉ gabel@aethersystems.com
- **Emma Hibbett** Key Communications (for SILA)  
☎ +44 (0)20 7580 0222  
✉ emmah@keycommunications.co.uk
- **Severine Percetti** Gemplus  
☎ +33 (0)4 42 36 67 67  
✉ severine.percetti@gemplus.com

## Sales Director for Bluefish

Ian England has been appointed Sales Director for Bluefish Technologies. Previously, he was Head of Business Development at ORGA Card Systems UK.

## Proton Agreement with Keyware

Proton World has signed an Original Equipment Manufacturer (OEM) Agreement with Keyware Technologies, a provider of biometric solutions for cardholder authentication and identification.

The two companies are already established technology partners and introduced their proof-of-concept integration of the Proton e-purse and Keyware's Layered Biometric Verification (LBV) at the Smart Card 2000 show in London last February where it won the award for the Best New Security Product.

Under the OEM agreement, Proton World will offer an optional biometrics component, using the Keyware LBV system, as an "add-on" to other applications in its end-to-end Smart Card solutions, and gains the right to license its use by third parties.

The new component will include a Fingerprint Verification Module, developed by Keyware, that will read fingerprints, compare them with bio prints stored on the Proton card, and then send encrypted data to the Proton terminal. The necessary terminal software development will be done by Proton World and the interface between the module and the terminal will be designed and developed by a joint Proton / Keyware development team.

Dr Armand Linkens, Managing Director and CEO of Proton World, said: "Biometrics is the next-generation technique, which will replace PIN codes whilst remaining user-friendly. This agreement allows us to respond immediately to requests we have already received from our licensees in developing countries, and also to offer a range of security options to new customers, according to their individual requirements."

Keyware's President and CEO, Francis Declerq, said: "The combination of biometric technology and Smart Cards produces obvious synergies. Bio prints, such as voice, fingerprint or face, can be easily stored on a Smart Card for a variety of security purposes."

### Contacts

#### ■ Ms Dominique Hautain Proton World

☎ + 32 2 724 5111

✉ info@protonworld.com

#### ■ Liz Marshall Keyware

☎ +1 781 933 1311

✉ emarshall@keyware.com

## Loyalty system for NE England

Worldcard is the latest product from Music Marketing Services, the London-based communications group. The card is shortly to be tested with up to 50,000 young people in the North East, with the aim of achieving over 800,000 cardholders in the region within three years.

What is unique about Worldcard is that it combines social functions with commercial benefits: in time it will carry a full range of social applications - student ID, transport ticketing, schools and education applications and skills training history. It will also carry an independent loyalty programme for retailers.

Schools can use the loyalty element of the Smart Card to encourage students who attend regularly or who choose healthy eating options to be rewarded with points.

The card could also give free Internet access for job and training searches and allow providers such as leisure services, to give discounts to students and the unemployed.

### Contact

#### ■ Northern Profile

☎ +44 (0) 191 273 2773

## Bonus Card in Turkey

Hypercom has announced that Garanti Bank, which has launched a Bonus Card in Turkey (SCN last month, page 104), is to initially deploy 2,500 Hypercom ePic ICE 5000 card payment terminals.

Gemplus manufactured the cards - GemClub 1K byte microprocessor cards with EMV compatibility and the bank expects to issue around 750,000.

The cards, terminals and networking equipment is being supplied by Istanbul-based IT group SERVUS Bilgisayar.

### Contact

#### ■ Mark McMurtrie Hypercom (Europe)

☎ +44 (0)1483 718600

✉ mmcmurtrie@hypercom.com

#### ■ Rolando Armago Servus

☎ +90 212 280 9410

✉ rolandoa@servus.com.tr

#### ■ Banu Akarsu Garanti

☎ +90 212 478 2391

## JMed Smart Medical Card

A Consumer held Smart Card holding individual medical records has been developed by LifeGard Technologies, a provider of personal health record systems and Internet technology. The system is based upon MULTOS, the multi-application Smart Card operating system. The JMed system integrates with GP and clinical software enabling previously incompatible systems to communicate with each other. Medical data can be updated on the card and the healthcare practitioner can choose to upload this information onto their own system.

The card provides 24hr access to medical record, unifies the differing NHS records, enables healthcare practitioners to share medical information and as it is patient held, delivers on patient empowerment.

The JMed card will begin pilots later this year with GPs and hospitals including the UK's Royal Surrey County Hospital in Guildford, The Chelsea and Westminster Hospital Maternity Unit, Kings College Renal Unit and the National Centre for Epilepsy in Buckinghamshire.

As the record is held on the card no connection to the Internet or telephone is required. A simple dual card reader is attached to the GP's own PC. For those who are field based hand held HP Jornadas with a custom built dual card reader will be provided.

The initial deployment infrastructure, which will be provided free to NHS hospitals and GPs in the UK, will be offered to 2,000 GP practices, 50 hospitals, 4,000 midwives and health visitors. The card will hold up to 40 pages of medical history giving health professionals 24-hour access to medical records in everyday consultations and in emergency situations.

LifeGard says JMed has received positive responses from organisations representing chronic conditions such as diabetes, epilepsy and coronary heart disease, as well as healthy groups such as pregnant women and mothers of young children.

It is planned for the cards to be available for purchase directly from LifeGard, from doctors' surgeries, hospitals and other outlets.

### Contact

■ **Jim Philips** LifeGard  
 ☎ +44 (0)1483 295645

## MULTOS for MIFARE PROX Cards

Philips Semiconductors has announced that Keycorp will port its MULTOS Version 5 operating system to its MIFARE PROX dual interface Smart Card controller range. This follows Philips' recent announcement to support Keycorp's 32K MULTOS Smart Card platform.

MULTOS Version 5, combined with the MIFARE PROX Smart Card controller range, supports both contactless and contact interface operations, allowing contactless transport ticketing applications, as well as existing contact banking solutions. MULTOS supports such applications as EMV (Europay, MasterCard and Visa Cash); credit/debit; and electronic purses, such as Mondex, Proton and Chipper.

"Philips Semiconductors considers this co-operation a significant step forward in developing multi-application platforms in the contactless world," said Karsten Ottenberg, General Manager of the Identification business line, Philips Semiconductors.

### Contacts

■ **Elizabeth Doerner** Philips  
 ☎ +43 3124 299760  
 ✉ Elisabeth.Doerner@philips.com

## e-Sign Bill will Spur E-Commerce

The federal government's new e-Signature bill passed by the US Congress will institute "uniformity in the adoption of standards" that will enhance e-commerce and e-business across the Internet, according to William Crowell, President and CEO of Cylink, Corp.

The Electronic Signatures in Global and National Commerce Act, passed by the Senate last month, recognises digital signatures as having equal legal weight as handwritten signatures for most commercial transactions.

Sensitive documents such as wills, adoptions, etc will be excluded from the bill which is expected to be signed into law by President Clinton.

### Contact

■ **Gene Carozza** Cylink Corp.  
 ☎ +1 408 855 6282  
 ✉ carozza@cylink.com

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## Briefing Notes on Multi-Application Smart Cards - Part 8

### Selecting Files

A key part of the ISO 7816-4 standard is the definition of a file structure, and although most applications manage their data in an application specific way it is still necessary to select the application before sending the particular commands. The application is of course a file in its own right.

There are two categories of files defined in the standard:

- Dedicated file (DF)
- Elementary file (EF)

A special case of the dedicated file in the Master File or MF which is the root of the file structure. This file is mandatory for compliance with the standard. All files are descended from the MF whilst DFs may also have dependant EFs. There are two types of EF; an Internal EF which stores data intended for internal interpretation by the card and working EFs where the stored data is intended for use by external application. An example file structure is shown in *figure 17*.

Files may be referenced by one or more of four methods:

- File identifier, which is a 2 byte code. The Master File is assigned a unique reference of 3F00<sub>hex</sub>.
- Path, this is a similar concept to that used in a PC where you can identify a file by its path using file identifiers starting from the root or Currently Selected File.
- Short EF Identifier, which is a 5 bit code valued in the range 1-30. Such an identifier clearly cannot be used as part of a path description nor can it be used by the Select File Command (to be described later).
- Name, a DF file may be referenced by a name coded between 1 and 16 bytes. This permits the use of Application Identifiers as specified in part 5 of the standard.

The data structure for an elementary file allows four options:

- Linear fixed
- Linear variable
- Cyclic
- Transparent

These four structures are shown symbolically in *figure 18*. The first three options are based on the use of records as encountered in any computer system.

The transparent option just refers to a block of data without the record structure. In this case the data must be accessed by a relative address to the start of the data block. The first three structures would normally access data by reading and writing records. Where the file management system takes care of the absolute address of the data.

This concept of a file structure really only permits the concept of reading and writing data into elementary files. The dedicated file concept allows a partition between data structures where a particular application may select a particular structure. This dedicated file may be used to control access to the data in the daughter elementary files by the use of password verification.

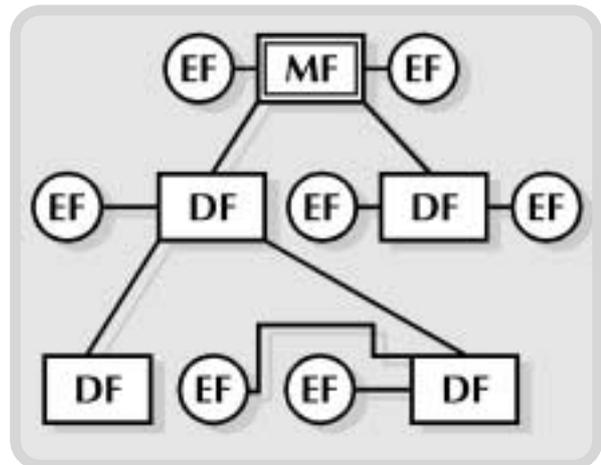


Figure 17  
Logical File Organisation

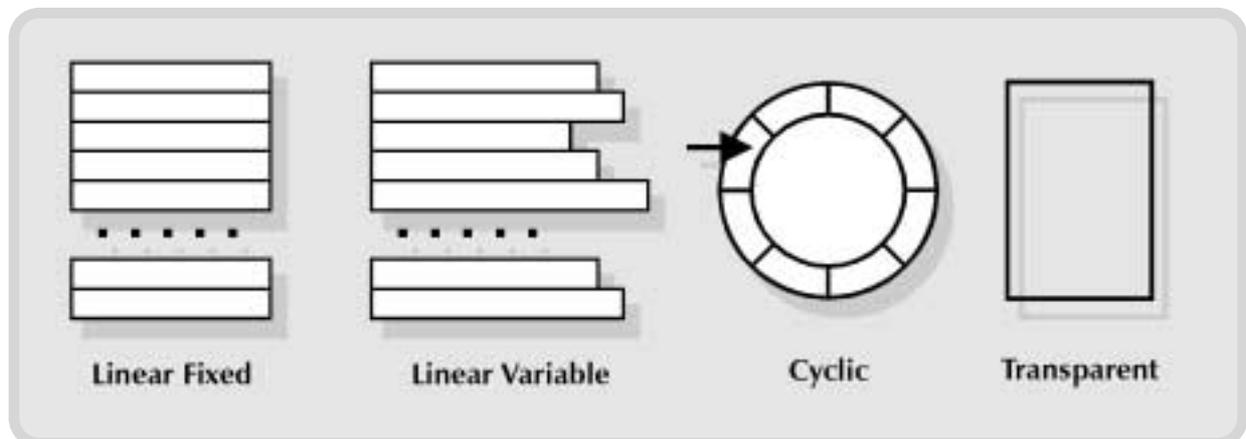


Figure 18  
Elementary File Structures

In this sense the file structure supports the segregation of multi-application data where the separate applications exist at the interface device.

This is really an incomplete picture which may support the historical use of IC cards as data carriers but does not define the principle of multi-applications co-existing in the IC itself.

In the multi-application world applications manage their data directly.

The tag identifies this field, the Length parameter gives the size of the data (in bytes) whilst the value represents the field data. This concept allows variable length fields which may be individually identified. This is an alternative approach to a bit mapped structure where the fields and length are predefined and a single bit in a tag field is used to indicate the presence or otherwise of the field. A bit mapped approach was used in the ATR (Answer To Reset) data to indicate the presence or otherwise of the specific interface characters.

The ASN.1 encoding has a two byte overhead for each data field compared with the one bit of the bit mapped approach. Each encoding scheme has its benefits but it is clear that when data space is at a premium then the bit mapped approach is better whilst the ASN.1 encoding offers more general flexibility.

The file control information in the data returned in response to a Select File Command. This data is TLV encoded in one of three templates:

- File Control Parameters (FCP)
- File Management Data (FMD)
- File Control Information (FCI), conveys both FCP and FMD.

The file control parameters are defined as an ASN.1 encoded data field that describes the necessary parameters such as file size, file identifier and optionally the file name. It also defines the type of file (i.e DF, or EF) and the data structure (i.e Linear fixed, linear variable, cyclic or transparent). The coding tables are given in the standard.

The file management data is also constructed as an ASN.1 object and may contain Inter-Industry or provider specific objects. It may be used for example to store security data for encipherment or password checking.

To be continued next month.

**David B Everett**

## Using the Wallet Sample Application

We will now use the JPython language with OpenCard to speak to the Wallet application, which is preloaded in the SCN Tutorial Smart Card. Before proceeding make sure the card is inserted in the reader.

Start up the BeanShell GUI so you are at the JPYTHON prompt. Now to set up the environment so you can speak

to the card enter the following :

```
from opencard.core.service import CardRequest
from opencard.core.service import SmartCard
from opencard.core.terminal import CommandAPDU
from opencard.opt.util import PassThruCardService
```

```
SmartCard.start()
cr = CardRequest()

cr.setWaitBehavior (CardRequest.ANYCARD)
sm = SmartCard.waitForCard(cr)
pcs = sm.getCardService(PassThruCardService().getClass(),1)
```

Make sure you press the enter key after each line. If you haven't placed the SCN card in the reader when you get the line `sm = SmartCard.waitForCard(cr)` the system will wait for you to enter a card into the reader, and continue when you do. This is quite a lot to type, and in future articles we will explore how to store commonly used code so it can be reused easily.

Now we can send APDUs to the card and get results. We will use the preloaded Wallet application that simulates a simple wallet application. Firstly, we have to select the application on the card. We do this by typing:

```
command = CommandAPDU([0x00,0xa4, 0, 0, 2,0x22,0x23])
response = pcs.sendCommandAPDU(command)
```

The first line creates an APDU to select the application, with the values of

```
CLASS = 0x00
INSTRUCTION = 0xA4
P1 = 0
P2 = 0
COMMAND = 0x22, 0x23
```

This instructs the card to select the application stored in the file 0x2223. The second line sends the command to the card, and stores the result in 'response'. To see the result simple type response at the prompt. You will see:

```
>>> response
opencard.core.terminal.ResponseAPDU@b32fbd06
```

```
0000: 61 28                                a(
```

In this case the card is saying the command succeeded with 40 bytes of data. We don't worry about the actual data, so we will not get it from the card now. We can now send commands to the wallet application.

The wallet application has a PIN that you must supply before you can use it. This is set to 00 00 00 00. To create an APDU to tell the card this PIN enter the following:

```
command = CommandAPDU([03,0x40,0,0,04,00,00,00,00])
response = pcs.sendCommandAPDU(command)
```

This time the response should be 0x9000, meaning the card has accepted the PIN. We can now get the balance by entering the following:

```
balancecommand = CommandAPDU([03,0x30,0,0])
response = pcs.sendCommandAPDU(balancecommand)
```

Showing the value of response should reveal a value of 0x20, meaning a value of 32 is on the card. We can decrease this by 4 by issuing the following:

```
debitcommand = CommandAPDU([03,0x20,0,0,1,4])
response = pcs.sendCommandAPDU(debitcommand)
```

Check that the response value is 0x9000 (success) and then reissue the balance command and see that the value is now 0x1c, or 28 in binary. The command to credit the wallet with 2 is:

```
creditcommand = CommandAPDU([03,0x10,0,0,1,2])
response = pcs.sendCommandAPDU(creditcommand)
```

Once more you can use the balance command to see the new balance. You can experiment with the various commands and see what happens when you try to take the balance below 0 and over 255.

Finally, to see that the balance is persistent between card sessions remove the card and insert it once more. Issue the last two lines from the set up once again:

```
sm = SmartCard.waitForCard(cr)
pcs = sm.getCardService(PassThruCardService().getClass(),1)
```

Now you can use the commands above again to check & manipulate the balance.

**Jon Barber**

## Correction - easi Solutions

In last issue's edition of Smart Card News (June 2000) our cover story featured easi Solutions plc's "easi-room" personal business centres, which are being fitted in all Hilton Hotels.

We have been asked to point out that the web site address we printed in that article is incorrect, and is in fact: [www.easimall.com](http://www.easimall.com)

We apologise for any inconvenience this error may have caused.

### Contact

- **Sarah Webb** Companycare Communications  
☎ +44 (0) 118 939 5900

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