

Industry news

Sustaining Members, British APL Association

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APL2000

The next User Conference will be 10-11 November 2008 at the Hyatt Regency in Bethesda, Maryland. Details and registration forms from www.apl2000.com or contact Sonia Beekman (sonia@apl2000.com) or on +1 (301) 208-7150. At press time the conference programme is:

- **What's new in APL+Win** *John Walker*. Highlights of the major new features and bug fixes in APL+Win since APL+Win 6. The features include improvements to the session manager such as the session property and `GetSessions` method, the graphical user interface `□wi` such as the `CloseDoc` and `OpenDoc` methods for the `Printer` object, the APL Grid print and print preview, the system interface such as the `Zip` class and other non-GUI related facilities such as the `W_Def` and `W_Reset` arguments to `□wcall`.
- **APL+Win interface to .Net libraries** *APL2000 staff*. This presentation describes a feature which can be used with APL+Win to create an interface to Microsoft .Net using a .Net assembly created by this utility. The .Net reflection namespace is used to display the methods, properties and events in a programmer-selected .Net assembly.
- **Grid computing using APL WebServices asynchronously** *Joe Blaze*. This presentation will provide a short overview of APL WebServices as a means to expose APL+Win software to web-connected users and machines. In addition, an example will be provided which illustrates how APL WebServices can be used to coordinate a scalable, asynchronous grid of processors to 'solve' amenable problems of a certain granularity, such as stochastic models, Monte-Carlo simulation, discrete-element analysis, etc
- **C# as the GUI and APL+Win supporting the business rules** *Ajay Askoolum*. This presentation will cover three subtopics:
 - C# using APL+Win as a COM server
 - A C# Windows Service using APL+Win as a COM server
 - Exposing a .Net assembly as COM for use by APL+Win

- **Reverse geocoding with APL** *Jeremy Main*. Using a public database of location names, examples and techniques for reverse location lookup (reverse geocoding) will be shown. Presentation will include several APL searching techniques, distance formulas, comparison presentations and database queries. Possible application areas will be discussed.
- **Interface APL+Win and .NET (C#)** *Eric Lescasse*. This presentation will demonstrate the various ways by which one can interface APL+Win and .Net (C#). This will include:
 - Consuming C# DLLs from APL+Win (using NetAccess)
 - Writing the application User Interface in C# and calling
 - APL+Win in the background
 - Porting your existing APL+Win application to .Net using C# and APL+Win
 - Porting your APL+Win application to Internet as a Client-Server .Net (C#) ClickOnce application using APL+Win on the Server
 - Writing ASP.Net (C#) web sites using APL+Win in the background and Ajax
- **Does APL make your Excel life easier?** *Kevin Weaver*. While Excel is reportedly the most widely used “language” for calculation-oriented work, there are many problems that have complicated solutions. APL can lend a hand in quickly working around these sticky issues. However, can APL *always* make your life easier? Sometimes Excel is the way to go... hard to believe?
- **Improved efficiency of execution of APL primitives** *APL2000 staff*. Executing an expression such as $a+b-c$ in right-to-left order incurs costs due to storing and fetching intermediate results. By restructuring execution order we can reduce fetch-and-store overhead and increase execution efficiency. This presentation describes the APL+Win interpreter enhancements that have implemented this approach.
- **VisualAPL: ready for Visual Studio 2008** *Jairo Lopez*. This presentation will demo new development tools included in Visual Studio 2008 and how you can take advantage of these tools with VisualAPL.
- **APL application demonstrations** An opportunity for conference attendees to demo their APL applications for other conference attendees. Learn about how the benefits of APL are being leveraged to create applications across a wide range of industries.

- **Overview of APL2000 product pricing** *Sonia Beekman*. An overview of products and services available through APL2000 including a description of the APL+Win Subscription Program and VisualAPL pricing.
- **Overview of the APLDN Forum and Open Forum with the APL2000 team**
This session will include a review of the procedure for communicating with APL technical support. The APL2000 Team will be available to answer questions and listen to comments and suggestions from conference attendees.

Dyalog Ltd

Dyalog Version 12.0.3 has been released:

- 32-bit Classic for Windows and AIX
- 32-bit and 64-bit Unicode for Windows and Linux

The main new features are secure socket communications for Conga, □FCOPY, and two new workspaces.

APLIN imports mainframe APL2 workspaces exported via the)OUT command

APL2PCIN imports PC APL2 or APL+Win workspaces exported via the)OUT command

Manuals for Version 12 are now available from Lulu.com, either printed to order, or as freely downloadable PDFs.

2008 conference programme

The Dyalog 2008 conference will be held at LO-skolen in Elsinore in October. Some highlights from the conference programme:

- **Demo of an ASP.NET application with a Dyalog engine** *Chris "Ziggi" Paul, The Childcare Company*. The LASER application is an online training tool for teaching NVQ levels 2, 3 and 4 to nursery staff. The system as an ASP.NET front end with Macromedia Flash plug-ins but is controlled and managed by a Dyalog APL.Net program.
- **Airline Revenue Management** *Maurice Jordan*. Airlines believe good Revenue Management enhances revenue by 5% or more. In an industry that struggles to return profits of even this magnitude, it has spawned a small army of consultants and its own mythology. The presentation will show a simple APL approach to "classical" revenue management. The underlying model for this classical formulation relies on the traditional complexity of airline fares, where

very few people can navigate the range of fares on offer. Internet selling blows a hole in this model. The presentation will show how dynamic programming (sorry, nothing to do with d-fns) indicates that a simple modification to the input data allows the original algorithm to be used in this new marketplace. There are parallels in Financial Services and many other industries where there is a fixed resource to be allocated to products offering different levels of return (and risk).

- **Genetic Algorithms** *Romilly Cocking*. Romilly has been interested in biology-based Artificial Intelligence since the 1970s. He's recently started to follow up on his early AI research. After great frustration using Python and Java, he's now using APL again.
- **Heterogeneous development with maximum re-use of APL assets** *Lars Stampe Villadsen & Martin Petri, SimCorp*. The existing SimCorp Dimension APL codebase is huge so it is important that as much as possible can be re-used while using new features provided by .NET/C#. This presentation will make a live demo on how development in APL and C# can be done in parallel by adding features to existing core functionality while maintaining the integrity of the system as a whole.
- **OO for the elderly** *Dick Bowman*. This presentation will explore Dyalog's object-oriented features through a back door, following a path taken by one elderly APL bigot – it may interest others who have a similar background, or newcomers wanting to make fullest use of APL's functionality.
- **Gridifying FinE using the Techila Grid** *Claus Madsen, FinE*. FinE is a comprehensive set of advanced financial functions covering all aspects of risk management, valuation and analysis. FinE is a developer's toolkit; the core is shipped as a DLL. The purpose of this presentation is to show a practical and real-life embedding of the Techila Grid Technology into a financial commercial product.
- **PKZIP your files using APL and .NET** *Gianluigi Quario, APL Italiana*. ICSharpCode.SharpZipLib.dll is a .NET compression library that supports Zip files using PKZIP 2.0 style encryption, with GNU long filename extensions. It is written entirely in C# for the .NET platform. It is implemented as an assembly, and can thus easily be incorporated into other projects (in any .NET language). Two Dyalog APL functions are presented that create and use objects that are instances of .NET Classes derived from this library and other .NET base libraries. These functions allow the compression and deflation of Zip files.
- **ADOC** *Kai Jaeger, APLTeam Ltd*. With the introduction of OO in Dyalog Version 11, implementation details of a class remain hidden. The user of a class needs

to know about and deal with only the public interface of a class. ADOC is a self-contained class designed to extract and report information about the public interface. ADOC is able to report public methods, fields and properties of any class, by request with detailed syntax information. But ADOC can do more than that: following a small set of simple rules one can put fully-fledged documentation into a class. ADOC is able to extract these pieces of information and create either an HTML report or an XML file from that.

- **Herding cats for fun and profit** *Joakim Hårsman, Profdoc Care*. Profdoc is a leading provider of healthcare information technology. Profdoc Care makes Profdoc HIS – a medical record system, and has grown from two to 13 APL developers in just a couple of years. Joakim was there for the ride and will talk about what had to change as the numbers of programmers grew, and how development at Profdoc Care works today. Joakim will address the following issues: why the idea that it's impossible to recruit APLers is nonsense; what changed as we got bigger; how to handle a ten year old code base weighing in at more than 300 000 lines, and remain nimble; the importance of tools, and the ones used at Profdoc.
- **Performance improvements in Dyalog** *Roger Hui, Jsoftware, Inc*. In the next version of Dyalog, some common boolean functions will be improved by factors ranging from 2 to 1600. We work through one particular example.
- **Serving lunch with Dyalog** *Tommy Johannessen, Jersie Data ApS*. The application is used by 25,000 school children and their parents for ordering and payment of school lunches. The lunches are produced in 25 kitchens located all over Denmark. Each kitchen has its own set-up and menu, and the application caters for the design, creation and running of individual kitchen websites. The presentation will focus on how this success story started and demo the various aspects of the application. The technical aspects will focus on how we created the `.aspx` files, the file structure, backup procedures, communication between the servers and the call structure.
- **The Array Constraint Engine** *Gert L. Møller, Array Technology*. Array Technology provides technology for solving complex constraint problems in real-time on a very small memory footprint. The technology is used in a range of business applications, e.g. for product configuration with many business rules or constraints. The key to the performance of the technology is the use of nested arrays (array-based logic) for handling logical constraints with a multitude of combinations. Dyalog 8.2 was used for prototyping the first version of the technology, but Gert will present how the next generation of the technology will benefit from the power of the latest Dyalog releases.

- **Snooping with APL** *Charles H. Brenner, Ph.D., Consulting in Forensic Mathematics.* Charles is a world-recognised authority in Forensic Mathematics – covering complex areas such as DNA identification, biostatistics, and population genetics. His DNA•VIEW™ APL-based software solution is the acknowledged leader and is the standard worldwide for DNA identification. The software has been used in countless cases amongst others the World Trade Center victim-identification work, Tsunami victim identification in Thailand, mass identification projects including *desaparacito* children from El Salvador, and war victims in Bosnia.
- **COPA-MS – A look under the hood** *Michael Baas, DLS-Planung.de.* Comanufacturing Management System (COPA-MS) is an application based on the Hologram BI-System from Dyalog's Australian distributor Hologram Pty Ltd. Last year, this project was mentioned in Michael Baas' & John Miller's talk on networking as the first fruit of the collaboration between Hologram and Dynamic Logistics Systems GmbH.
- **OOSTats – Performing statistical calculations using Dyalog** *Alan Sykes, Acadvent Ltd.* The advent of the object-oriented features in recent Dyalog Interpreters provides a new and exciting framework within which to construct software to analyse data. The talk will demonstrate statistical objects that allow an APL user to perform statistical calculations on realistic data sets that may well contain missing values. All statistical functionality is made available either directly from user commands from the session, or, for more speedy data exploration sessions where a variety of alternative analyses might be envisaged, by using a menu-driven GUI version.
- **Pocket APL** *Ray Cannon.* Notes on developing a system that runs under Dyalog PocketAPL, with two example applications (GPS and Su-Doku), and some utilities making `ⓘNA` calls to the underlying operating system.

The conference will be bracketed by training days, plus a couple of workshops on the Tuesday:

- *Sharpening Your APL Knife* Kai Jaeger
- *Source Code Management using SALT and SubVersion* Dan Baronet
- *Migrating to Unicode* Morten Kromberg
- *Fast-track your GUI Design* Adrian Smith
- *Using the Microsoft .Net Framework* John Daintree
- *Introduction to Object-Oriented Programming* Daniel Baronet
- *Web Creole* Stephen Taylor
- *Conga & SSL* Morten Kromberg

- *RainPro* Adrian Smith

Hologram

Dyalog has appointed Hologram Pty Ltd as a new distributor for Australia and New Zealand.

Hologram Pty Ltd is an Australian Business Intelligence company founded in 2004 to develop and deliver future-proofed Business Performance Management solutions. Hologram's founders have an extensive track record as developers of highly successful treasury risk-management and financial-reporting software packages.

Hologram's attention to detail, meticulous programming skills and ability to solve the most complex mathematical problems are invisible to end users, who benefit from ease of use, point-and-click drill down, and instant access to real-time modelling and reporting from enterprise systems.

The company has a strong focus on manufacturing and financial institutions, with customers including leading beverage companies, credit unions, merchant banks and leasing companies.

In connection with the appointment, Managing Director Gitte Christensen says, "I am absolutely delighted that Dyalog is partnering with Hologram. The company's extensive experience in array language development and applications in the finance, banking and treasury industries makes it a natural and easy fit with Dyalog."

Hologram's business focus includes high-performance, real-time transaction-monitoring and data-information systems. The company's principals have an established track record of working with banks, exchanges and credit unions in development and consultancy in areas such as treasury systems, anti money laundering, risk management, compliance reporting, portfolio management and trading systems. They have worked with institutions around the world including the Bank of South Australia and Société Générale, as well as the stock exchanges of Singapore, Indonesia, Istanbul and Oslo.

Kx Systems

Charles Skelton to take over as CTO

Financial industry veteran Charles Skelton will take up the position of Chief Technology Officer on 1 November, replacing Niall Dalton.

Prior to joining Kx, Charles Skelton was the owner of and principal consultant at Skelton Consulting GmbH, a product development and software consulting company specialising in financial-markets technology. Skelton has been working closely

with Kx for a number of years; his company's focus was on advanced market data capture and analytics using Kx's kdb+. Skelton has expertise in writing feed handlers, as well as in-depth experience in setting up very large, high-performance, infrastructure market-data systems for tier-one banks. Skelton's responsibilities will include working with Kx's development team on product development, enhancement and support, focusing on new features; he has a proactive style and intends to be in regular and close contact with Kx's client base.

Dalton will relinquish his current position of CTO at the end of October, but will remain with Kx in a consultancy capacity. This new role will allow Dalton greater flexibility to pursue some of his other technology and personal interests.

Says Janet Lustgarten, CEO of Kx: "I am delighted that Charles is joining us. We have been working with him for many years so he has an intimate knowledge of kdb+ and q, and already knows many of our clients. Having been a client of Kx, Charles has been on the 'other side of the fence' and has a great deal of insight into what our clients need from us. It is great to have Charles as part of our team, and I'm very much looking forward to working with him even more closely than before. I would also like to thank Niall for all of his fantastic work at Kx. Niall has always made it clear that he had other interests outside of Kx that he wished to pursue at some stage and I am pleased for him that he is now taking the time to do so. Importantly, his leadership in creating a community environment within Kx has and will continue to be of tremendous benefit to our clients."

Skelton spent ten years in the telecoms industry as a consultant developing real-time software for large multinationals before moving into technology for financial institutions. During his many years in this market Skelton has assisted numerous institutions such as JP Morgan, HypoVereinsbank and Deutsche Bank with their deployment of kdb+. He has provided consultancy to firms based in the US, Germany, the UK and Spain.

"I was fortunate to have worked with Kx on kdb+ applications for a number of years and have been an active member of the Kx community, often presenting at the annual Kx conferences. I am very excited with this opportunity to be more involved with Kx and to use my expertise for the benefit of all Kx clients," Skelton says.

Kx growth continues with new partner in Australia

Kx Systems has signed a partnership agreement with Hologram Business Intelligence, the Australian-based supplier of business performance management solutions.

The relationship between the two companies goes back a long way and means that they already have an in-depth understanding of each other's products and businesses. The deal will see Hologram taking on the sales, support and consultancy of Kx's Kdb+ database and its q language in the Asia-Pacific region. Kx products may also be incorporated into Hologram's offerings in the future.

Hologram's extensive experience in array-language development and applications in the finance, banking and treasury industries makes it a natural and easy fit with Kx. Hologram's business focus includes high-performance, real-time transaction-monitoring and data-information systems. The company's principals have an established track record of working with banks, exchanges and credit unions in development and consultancy in areas such as treasury systems, anti money laundering, risk management, compliance reporting, portfolio management and trading systems. They have worked with institutions around the world including the Bank of South Australia and Société Générale, as well as the stock exchanges of Singapore, Indonesia, Istanbul and Oslo.

Janet Lustgarten, CEO of Kx Systems, comments, "We are very much looking forward to working with Hologram and extending our product reach to include Australia and New Zealand. Their thorough understanding of our language and database means that they will be able to help financial institutions in their region make full use of the benefits provided by Kx products. I'm excited about the opportunities offered by the partnership and of extending the Kx product family to the region."

Says Guy Pitman, founder and director of Hologram, "We see great potential for Kdb+ and q, particularly in the areas of real-time data analysis and high-end database engines for data-intensive applications in finance, fraud, banking and other high-volume transaction systems. With two offices in Australia and eyes firmly set on New Zealand and Asia we are exceptionally well positioned to build momentum and growth around Kx's products." Pitman adds, "I believe that high-end transaction processing is currently less sophisticated than it could be in Australia and New Zealand. Working with Kx will allow us to offer an exceptional service to institutions operating in this field."

Enhanced multi-core Kdb+ includes DTrace and more speed

Kx Systems has announced a new version of Kdb+. With the progress in hardware development and rising data volumes it is essential that software is able to not merely keep up with progress, but make the absolute best use of hardware improvements. This is why every new version of Kdb+ is described as being even faster than the previous version – because it is.

From the outset Kdb+ was specifically designed and optimised for multi-core capability, and can handle all machines available on the market. The soon-to-be-released v.2.5 benefits from even faster multi-threading as well as a number of other significant enhancements including DTrace support, optimised intelligent memory allocation, and a number of new interfaces. Now available to customers for final testing and evaluation, v.2.5 will be noticeably faster for queries, especially on large databases.

Support for DTrace, a powerful infrastructure for analysing the allocation and usage of resources on large servers running Solaris, is now available in Kdb+. Some of Kx's largest clients, including many tier-one banks, now see support for DTrace as non-negotiable in their core infrastructure products and critical services such as Kdb+.

Kx recognises that institutions are facing growing pressures on their resources. A number of enhancements in v.2.5 have been made to help financial institutions address some of those issues. DTrace allows very detailed (low-level) monitoring which does not modify code and helps to track down bottlenecks. More efficient threading means that large partitioned databases will be considerably faster. In addition existing interfaces to Java, C#, C, C++ and Excel have been enhanced, while interfaces to R and F# have been added.

"Intel is focused on the massive compute workloads across the trading lifecycle – from market data, through analytics and risk to trade routing," said Nigel Woodward, Intel Global Financial Services Director. "Throughput and low-latency at every stage are critical, which is why Intel works closely with Kx so that Kx's software structure and Intel's parallel processor infrastructure combine to provide a competitive advantage to our mutual clients."

Says Simon Garland, chief strategist at Kx, "Our customers expect Kx to be the fastest. To achieve this we constantly work on optimisation and ensure that Kdb+ is able to make use of the latest developments in technology. We are also very conscious of the need to be good citizens when using resources: where several years ago a vendor might have expected to have exclusive use of a machine that is no longer the case. The new version of Kdb+ has been further optimised to allow our clients to get the most out of their new hardware."