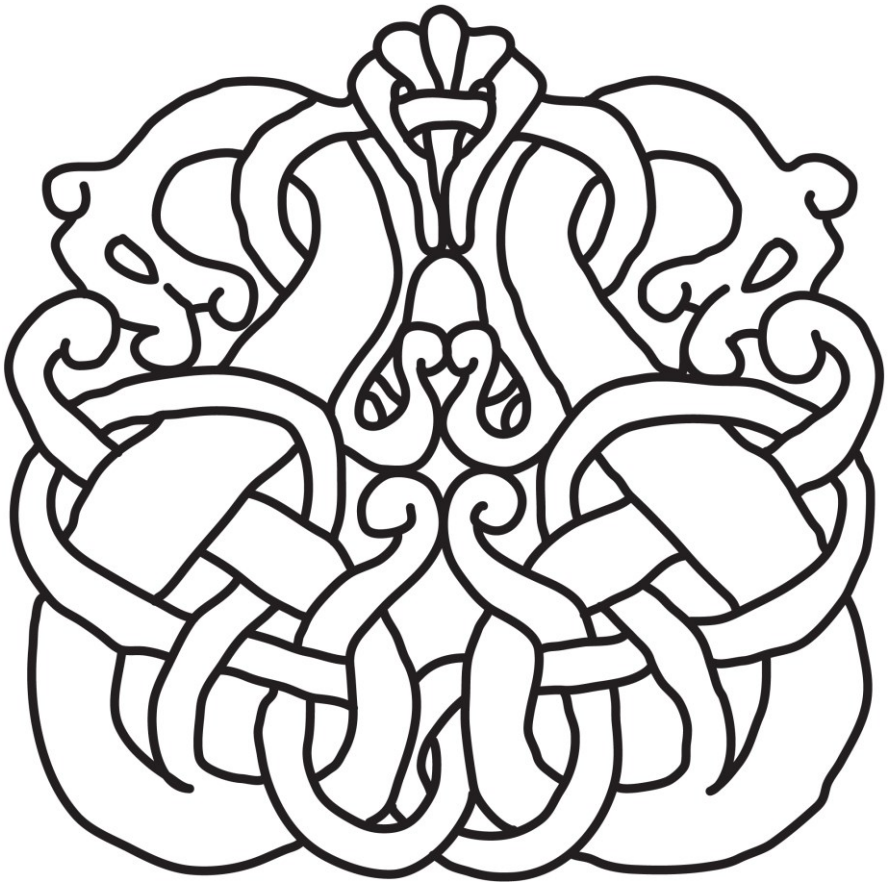
DYALOG User Conference 2007

Conference Programme



Princeton, New Jersey

(for practical information, see the back cover)

Conference Programme

Sunday September 30th – Training Day

09.30 -16.30 Coffee breaks as appropriate **12.30-13.30 LUNCH** Coffee breaks as appropriate	Courses, in parallel: 1. **Introduction to Object Oriented Programming** (Daniel Baronet) Full day 09.30 - 16.30 2. **Introduction to Microsoft.Net** (John Daintree) Morning 09.30 - 12.30 3. **A working introduction to Object Oriented Programming and SALT** (Stephen Taylor) Morning 09.30 - 12.30 4. **Microsoft.Net Master Class** (John Daintree) Afternoon 13.30 - 16.30 5. **Ultralight web development** (Stephen Taylor) Afternoon 13.30 - 16.30

For course outlines see pp 8 - 11

Conference Programme

Monday October 1st

Time	Stream A	Stream B
09:30	Gitte Christensen: Dyalog today and tomorrow	
10:15	Morten Kromberg: Dyalog for Enterprise Applications	
11:00	Coffee	
11:30	Nicolas Delcros and John Scholes: Version 11.1 Performance Enhancements (9a)	
11:45	Risto Saikko, Techila Oy (Finland): Grid Computing with Dyalog (18)	
12:30	Lunch	
13:30	Morten Kromberg: Introduction to Unicode (4)	
14:15	John Daintree: New features of the Dyalog Development Environment (3)	
15:00	Coffee	
15:30	Stephen Taylor: Ultralight Web Development (6)	Morten Kromberg: New Tools for Distributed Applications (7)
16:15	Short Break	
16:30	Dan Baronet: SALT, SubVersion and the Dyalog Code Library (5)	
17:15	Michael Baas, Dynamic Logistics Systems (Germany) and John Miller, HologramBI (Australia): Networking for APL'ers (11)	
17:45	Break	
18:25	This Years Challenge	Room 212
19:45	Assemble for Banquet	Executive Center Dining Room

For ABSTRACTS see pp 12-18

Conference Programme

Tuesday October 2nd

Time	Stream A	Stream B
09:00	John Miller, HologramBI (Australia) & Adrian Smith, APL-385 (UK): Dealing Room Pricing in Pure Managed Code, Driven by APL, Presented in Excel (16)	Geoff Streeter: Keyboards in the New World (8)
09:45	Lars Villadsen, SimCorp (Denmark): Types in APL (20)	Alex Balako, CheckFree Investment Services (USA): Exploring Microsoft DirectX interface with Dyalog APL 11.0 (12)
10:30	Coffee	
11:00	Simon Garland: kdb+ as a fast inverted database (1)	Phil Last: Vindaloo (14)
11:45	Morten Kromberg: Dyalog as front-end for kdb+ (2)	John Scholes: An investigation into higher-level operators (10)
12:30	Lunch	
13:30	Alexey Miroshnikov, Infostroy (Russia): Modern APL Application Design (17)	Lars Villadsen, SimCorp (Denmark): Version Control 101 (19)
14:15	Nicolas Delcros and John Scholes: Version 11.1 Performance Enhancements (9b)	
14:45	Coffee	
15:15	Roger Kumler, CommSoft (USA): Script Driven Data Exchange between Incompatible Systems (13)	
16:15	Steven W. Levine, ExxonMobil (USA): Compositional Modeling in the Petroleum Industry with APL. (15)	
17:00	Gitte Christensen & Morten Kromberg: Closing Session	
17:15	Cocktail Hour	
18:30	Dinner	

For ABSTRACTS see pp 12-18
For Dyalog / kdb+ WORKSHOP see pp 6 and 19

Conference Programme

Tuesday October 2nd - Workshop

Time	
13.30 – 17.00	**Stephen Taylor, Jeffry Borror, Adrian Smith:** Dyalog / kdb+ workshop

For description and abstract see page 19

Conference Programme

Wednesday October 3rd – Training Day

09.30 -16.30 Coffee breaks as appropriate **12.30-13.30 LUNCH** Coffee breaks as appropriate	Courses, in parallel: 1. **Introduction to Object Oriented Programming** (Daniel Baronet) Full day 09.30 - 16.30 2. **Office Automation using Dyalog** (Richard Procter) Full day 09.30 - 16.30 3. **Introduction to Microsoft.Net** (John Daintree) Morning 09.30 - 12-30 4. **A working introduction to Object Oriented Programming and SALT** (Stephen Taylor) Morning 09.30 - 12.30 5. **Introduction to RainPro and NewLeaf** (Adrian Smith) Morning 09.30 - 12.30 6. **Microsoft.Net Master Class** (John Daintree) Afternoon 13.30 – 16.30 7. **Ultralight web development** (Stephen Taylor) Afternoon 13.30 – 16.30

For course outlines see pp 8 - 11

Abstracts – Courses
Sunday September 30th & Wednesday October 3rd

All courses will allow time for users to experiment with the course materials, for participants who bring a laptop computer to the course. The "pre-requisites" can be found in each course description list i.e. which other software programmes will be required.

Introduction to Object Oriented Programming - using Dyalog version 11.0

Daniel Baronet, Dyalog Ltd. - Full day course 09.30 – 16.30

Version 11.0 of Dyalog introduced Classes to the APL language. This course takes a pragmatic APL'ers eye view of object orientation and after introducing a little OO theory, the focus of the course will be on showing how OO has been implemented in Dyalog. Some time will be spent creating classes and using them.

If time permits some of the more advanced features (e.g. how it integrates with .Net) will also be introduced.

Pre-requisites: Dyalog APL 11.0.

Office Automation using Dyalog - Combining Excel, Word and other tools with Dyalog applications

Richard Procter, APL Borealis - Full day course 09.30 – 16.30

Very many applications can benefit from using "Office Products" like spreadsheets and word processors for data entry or presentation, or for other types of processing. Dyalog can be "in the driving seat", using external products as "servers", or be used as an embedded component driven by applications written in scripting languages like Visual Basic for Applications, within other products.

Richard will introduce the subject using Microsoft Office products, focusing primarily on Excel as both server and client. Later, the same concepts will be briefly explored using other Office products and database tools.

Pre-requisites: Dyalog APL 10.1 or 11.0, Microsoft Excel.

Abstracts – Courses
Sunday September 30th &
Wednesday October 3rd

Introduction to Microsoft.Net

John Daintree, Dyalog Ltd. - Half day course 09.30 - 12-30

Version 11.0 of Dyalog APL integrates comfortably with the Microsoft.Net Framework. This course will give an overview of, and show how you can take advantage of, the features included in the Framework itself, and in Visual Studio, Microsoft's cross-language development platform. John will show you how to find and understand documentation of the framework class libraries, and he will introduce you to some of the most useful classes. We will explore how to use the VS Form Designer to build forms which use APL code, and write APL classes which can be used from C# and VB.Net. The course will *very* briefly show how to call APL code from Microsoft Internet Information Services (IIS).

Pre-requisites: Dyalog APL 11.0, Microsoft .Net Framework 2.0 (with SDK), ideally Microsoft Visual Studio 2005.

A working introduction to Object Oriented Programming and SALT

Stephen Taylor - Half day course 09.30 - 12-30

Class objects and SALT open up new ways to construct Dyalog applications. In this workshop we'll write a simple address book application with SALT'ed source code and some class objects.

Pre-requisites: Dyalog 11 or willingness to share a keyboard. Complete exercises in Morten's "Introduction to Object Oriented Programming for APL Programmers"

Abstracts – Courses
Sunday September 30th &
Wednesday October 3rd

Introduction to RainPro and NewLeaf

Adrian Smith, Causeway Ltd. - Half day course 09.30 - 12-30

This course will cover the basics of using the .Net builds of SharpPlot (RainPro) and NewLeaf directly from Dyalog. It will also offer existing RainPro users some hints on conversion, and a set of cover functions which (almost) retain the existing interface.

Several simple charts will be developed in easy stages and incorporated into a typical glossy report along with text and tables. If any of the participants have a particular charting challenge, please bring it along and we will see how close SharpPlot can get in the time available. The new Microsoft Silverlight format will be briefly introduced, and some of its more interesting tricks (such as animations) will be explored.

Pre-requisites: Dyalog APL 11.0

Microsoft.Net Master Class

John Daintree, Dyalog Ltd. - Half day course 13.30 – 16.30

Following on from the "Introduction to Microsoft.Net" John Daintree will walk through a number of real examples of integrating Dyalog APL and Microsoft.Net. Samples and applications are welcome from the attendees, where the solutions can be explored, or, if necessary, solutions can be found to any outstanding problems.

Pre-requisites: Dyalog APL 11.0, Microsoft .Net Framework 2.0 (with SDK), ideally Microsoft Visual Studio 2005.

Abstracts – Courses
Sunday September 30th &
Wednesday October 3rd

Ultralight web development

Stephen Taylor Dyalog Ltd. Half day 13.30 – 16.30

The ubiquity of web browsers makes them a key user interface tool. Web pages are written in HTML. An ultralight developer would want the HTML to be simple and lucid, but most web sites are produced using design software that generates voluminous and barely-readable code.

The ultralight developer, racing along with APL and simple tools, needs Web interfaces that don't bog him down.

This workshop introduces ultralight methods of writing simple, sharp and professional looking web sites. We shall use simple Dyalog tools to remove repetition from the source, and look at code for generating more complex sites. We'll also preview Dyalog 11.1 Unicode with a bilingual site in English and Japanese. Finally, we'll look at the use of WildServer to serve pages written by the server.

Pre-requisites: PC with Dyalog 10.1+ or willingness to share a keyboard.

Abstracts

Monday October 1st & Tuesday October 2nd

Dyalog presentations

Gitte Christensen: Dyalog Today and Tomorrow (Opening Session)

A status report and review of Dyalog's strategy for the next few years, from the CEO.

Morten Kromberg: Dyalog for Enterprise Applications (Technical Keynote)

With Object Orientation and Unicode under our belts, the next technical focus for Dyalog will be performance and connectivity. Our goal is to make it significantly easier to develop, deploy and manage robust, secure and scalable components and services for very large international enterprise applications.

(3) John Daintree: New Features of the Dyalog Development Environment

In addition to Unicode, version 11.1 delivers a number of enhancements to the IDE to support development of classes and the use of Microsoft.Net components. John will be our guide to the new functionality in 11.1 and a few useful features from other recent releases.

(4) Morten Kromberg: Introduction to Unicode

The defining feature of Dyalog Version 11.1 is support for Unicode character data. Unicode is an industry standard allowing computers to consistently represent and manipulate text expressed in any of the world's writing systems. It assigns a number, or code point, to each of approximately 100,000 characters, including the APL character set.

This presentation will demonstrate the new features which have been introduced in order to support Unicode, and discuss the benefits that Unicode provides. Morten will discuss the most significant issues that will arise during conversion of existing Dyalog applications to Unicode, and introduce some issues that developers of Unicode applications must confront.

Abstracts

Monday October 1st & Tuesday October 2nd

Dyalog presentations

(5) Daniel Baronet: SALT, Subversion and the Dyalog Code Library

The Simple APL Library Toolkit (SALT) is a mechanism for storing Namespaces and Classes as text files, rather than using internal binary formats. Dyalog is planning to use SALT as the delivery mechanism for code libraries. Dan will should how SALT can be used together with an industry standard source code management system, and launch a web-based "open source" code repository that everyone is invited to contribute to.

(6) Stephen Taylor: Ultralight Web Development

Stephen will show how Dyalog can be used to implement static and dynamic web pages using techniques which any Dyalog user can master. No heavy machinery involved.

(7) Morten Kromberg: New Tools for Distributed Applications

The Dyalog Remote Communicator, also known as Congo, is a new tool for enabling the easy construction of client/server and peer-to-peer applications, which will be delivered as part of version 11.1. Congo supports Secure Sockets and makes it straightforward for Dyalog users to implement web client and server programs, and "remote procedure call" mechanisms.

Morten will also review the status of the Dyalog File Acceleration Server, a new product which is targeted for availability in 2008. The FAS aims to provide a faster, more robust file system for large applications where many users are sharing files across heavily loaded corporate networks. The FAS will also provide statistics, instrumentation and backup capabilities which are not available from the existing file system.

(8) Geoff Streeter: Keyboards in the New World

With version 11.1 and Unicode support, Dyalog will no longer use special input and output translation mechanisms, but join the rest of the world in accepting Unicode input from standard "Input Mode Editors" and "x keyboards" defined using standard operating system mechanisms. Geoff will review the platforms on which our products are available, and discuss mechanisms for defining keyboards in each environment.

Abstracts

Monday October 1st & Tuesday October 2nd

Dyalog presentations

(9) Nicolas Delcros and John Scholes: Version 11.1 Performance Enhancements

In addition to Unicode support, we have taken time out to review the performance of several key primitive functions and other internal mechanisms. Nic and John will present some of the results of this work and invite you to argue for future improvements that you would like to see.

(10) John Scholes: An Investigation into Higher Level Operators

John will take us on a tour of hyper-operators and other exotic constructs that he has been looking into recently.

Abstracts

Monday October 1st & Tuesday October 2nd

Customer and Partner Presentations

(11) Michael Baas, Dynamic Logistics Systems (Germany) and John Miller, HologramBI (Australia): Networking for APLers

During Dyalog 2005 in Elsinore, John Miller presented his Business Intelligence System "Hologram", and Michael Baas was in the audience. This talk will tell the story of how they subsequently got together, which benefits they have derived from their co-operation, and how Hologram was able to add (another) world-famous customer-logo to their reference-list. The presenters would like to encourage fellow APLers to get together and explore similar opportunities for partnerships.

(12) Alex Balako, CheckFree Investment Services (USA):

Exploring Microsoft DirectX interface with Dyalog APL 11.0

DirectX is a set of low-level application programming interfaces (APIs) for creating games and other high-performance multimedia applications. Since version 9, it supports .NET interface. The presentation explores resources of Managed DirectX using features of Dyalog APL version 11.0. Several examples will demonstrate building of simple multimedia player, creating image viewer and Virtual Reality player, demonstrating operations with 3D objects and special effects.

(13) Roger Kumler, CommSoft (USA):

Script Driven Data Exchange between Incompatible Systems

The hardware components of the telephone industry: order and billing systems, switches, cable TV head-ends, voice mail systems and so on, were never designed to talk to each other. For the last 15 years, two APL applications have made it possible for telephone companies to automate the interaction between an order system and all of the external devices that must be updated to fulfill a customer's order. User-defined scripts, interpreted by APL programs drive the entire process and accommodate complex relationships between the devices.

Abstracts

Monday October 1st & Tuesday October 2nd

Customer and Partner Presentations

(14) Phil Last (UK): Vindaloo

Computer language research uses the term *currying* to refer to the composition of functions with arguments. Phil will present some conjectural extensions to APL involving powerful curry mixtures.

Eric Lescasse, Lescasse Consulting (France):

Porting your Dyalog APL application to the Internet.

This paper discusses the advantages of, and provides a recipe for using Microsoft.Net and C# to transform Dyalog applications into "rich client applications" making use of the Windows GUI, packaged in such a way that they can be launched with a single click and run from within a browser by anyone having an internet connection. The resulting applications load and start on client computers without installing any local files, and access Dyalog code and data on a server.

Unfortunately, Eric is unable to attend the conference – but his paper will be distributed at the conference, and we invite you to read and discuss with Dyalog and other conference participants. John Daintree will discuss Eric's proposal at the .Net Masterclass.

(15) Steven W. Levine, ExxonMobil (USA):

Compositional Modeling in the Petroleum Industry with APL.

Dyalog APL is an enabling tool in the detailed modeling of petroleum refinery chemistry and processing. Traditionally, this type of modeling is very difficult due to the complex nature of petroleum. APL helps to manage the complexity and frees the modeler to spend time addressing the science instead of writing code. Dyalog APL is also used to easily deliver the models as desktop applications to users, who in turn use them to make money for the company. This talk is an overview of our modeling effort, with periodic forays into APL which demonstrate its fit for use.

Abstracts

Monday October 1st & Tuesday October 2nd

Customer and Partner Presentations

(16) John Miller, HologramBI (Australia) & Adrian Smith, APL-385 (UK): Dealing Room Pricing in Pure Managed Code, Driven by APL, Presented in Excel

Pricing and analytics for the capital markets at SocGen (Australia) are created in Dyalog, translated to C# and delivered to the users in Excel thanks to the Stocastics managed XLL interface. This allowed a large base of tested APL work to be delivered as pure managed code in accordance with the latest company guidelines. New routines can be efficiently coded, translated and delivered very productively – this will be demonstrated during the presentation.

(17) Alexey Miroshnikov, Infostroy (Russia): Modern APL Application Design

Any software project is a compromise between marketing goals, requirements of existing customers, available resources (individuals and teams), and the choice of new versus tried and tested technologies.
Without claiming to be particularly original, Alexey will present his ideas on pragmatic software design and management based on his experience with the design and development of a portfolio management system GamaGlobal that is under development at InfoStroy in St. Petersburg, Russia.

(18) Risto Saikko, Techila Oy (Finland): Grid Computing with Dyalog

Over 95% of the PC power available in most companies is wasted; between mouse-clicks, keystrokes and spikes of application activity, the average PC sits idle. Techila Oy is a Finnish company who provide technology which can harness unused CPU cycles to create an aggregate computational resource known as a PC grid. Risto Saikko will explain the steps required to “gridify” a Dyalog application and explain how and when you can benefit from PC grid technology.

Abstracts

Monday October 1st & Tuesday October 2nd

Customer and Partner Presentations

(19) Lars Villadsen, SimCorp (Denmark): Version Control 101

The software configuration management team of SimCorp Dimension holds up till 16 different versions of the product. The major challenge is to ensure that every single piece of the system is known and controlled. Following up on Lars' high-level presentation at Dyalog'06, this session is a more technical discussion of the actual implementation of tools and the utilities used to keep this environment running smoothly.

(20) Lars Villadsen, SimCorp (Denmark): Types in APL

One of the major advantages of APL is the lack of types - it is also one the major weaknesses. At SimCorp, we have implemented our own type system (and syntax) that runs in development mode of our system. The session will give an introduction to our type interface and the use in our system by showing examples of the types. The session will also show how these types are used for signature comparisons and validation of code used before any code can be committed to our version control system.

Abstracts

Monday October 1st & Tuesday October 2nd

Kdb+ and Dyalog Workshop

Jeffry Borror, Adrian Smith and Stephen Taylor:

Jeffry Borror is the author of "q for mortals". Adrian Smith is the father of SharpPlot (nee RainPro) and NewLeaf, Stephen Taylor is an Agile Array Language Evangelist and the current editor of Vector. Together, they will help us explore the combined capabilities of kdb+, Dyalog, SharpPlot and NewLeaf.

kdb+ is a fast array-oriented database system which can be accessed through the k language, or as a relational database using q notation. k can be viewed as a "reduced instruction set" dialect of APL, with focus on simplicity and performance. Dyalog is a dialect of APL which has grown to include object orientation, GUI tools, and a wide variety of interfaces to other computing platforms or frameworks.

Together with our colleagues at Kx Systems, we have assembled a team of experts to present a full day workshop on the advantages of combining these to array-based products in order to quickly build high-performance database applications with high-quality graphical interfaces - all while remaining in an array- and domain-oriented programming mode.

The workshop will kick off with presentations by the CTOs of Kx and Dyalog. After lunch, Stephen Taylor, Jeffry Borror and Adrian Smith will present a hands-on workshop showing how to combine kdb+, Dyalog, SharpPlot and NewLeaf to build spectacular analytical applications.

(1) Simon Garland, Kx (Switzerland): 2 + 2 = 22 (for some values of 2)

Simon Garland discusses some of the areas where APL and kdb+ complement each other - and the benefits of staying within a similar mindset when forced to go beyond a single language solution to complex problems.

(2) Morten Kromberg, Dyalog: Fast, Vector-Based Front-end for kdb+

Following on from Simon Garlands talk, Morten will demonstrate how Dyalog can be used to put a graphical front-end on kdb+ - and how Dyalog applications can use kdb+ as a fast database system.

Welcome to the Dyalog User Conference 2007
Wyndham Princeton Forrestal Hotel & Conference Centre, Princeton, New Jersey.

In order to make your stay as pleasant as possible, we would like to draw your attention to some practical details.

Check In and Out

Your room will be available from 3pm on the day of arrival, and you will need to be out of the room by 12 noon on the day of departure. You can store your bags in the cloakroom if required.

Internet access

Wyndham Princeton Conference Center & Hotel offers complimentary high speed internet access in all the guest rooms. Wyndham further offer some wired high speed connections in public areas in the Hotel and Conference Center. There is also wireless internet in the public spaces but the signal could be weak if several guests are logging on at once.

Dyalog has arranged for internet access in the training and conference presentation rooms – however there is limited capacity and the Internet access is predominantly dedicated for the presenters showcasing material during sessions/training. Please therefore accept our apology in advance should you not be able to get internet access in the conference and training rooms.

Meals and Drinks

The CMP conference fee includes all meals and breaks at conference days. The day rate conference fee includes lunch and breaks.

- The Lunch buffet includes ice teas, assorted sodas, milk, fruit juice and iced water.
- Dinner includes ice teas, assorted sodas, milk, fruit juice and iced water.
- All drinks are included in the Banquet Dinner.
- Coffee, tea, juices, assorted sodas and bottled water are available ad libitum during the day (self service).

Wine, beer and other beverages can be purchased at the bar. The bar closes at midnight each night, except after the banquet, where it will remain open until 1am. After that time, non-alcoholic drinks can be bought from vending machines – make sure you have plenty of small change!

Leisure Time

The Swimming pool, Jacuzzi, Fitness Centre, Pool Table, and other activities are available free of charge.

Smoking policy

Wyndham operates a strict non-smoking policy everywhere indoors. Please observe that smoking is not allowed in the bedrooms either. There are clearly marked dedicated smoking areas outside the centre so please use those.

Welcome!