

Basic-2C[®] Connection

News and Information from the Basic-2C Community

Volume III, Issue 6

April 1992

Niakwa Unveils 1992's Development Strategy

With our first newsletter for 1992, this may be a good time to reflect on what we have accomplished during 1991 and to discuss what is on the agenda for 1992.

Before getting to the details, let's review Niakwa's product strategy. Niakwa's goal is to provide application developers with sophisticated, portable, high performance development tools. This general strategy has three primary components:

A. **Portability** - continue to improve the portability of the products and offer them on today's most important systems

B. **Language Enhancements** - add to the capability of the base language.

C. **Development Tools** - add sophisticated development tools to the product line such as Data Manager, Query Tools, Screen Manager, and Report Tools.

Niakwa formulated this strategy in 1990, and late in 1990 began to implement this strategy by increasing R&D staff significantly. In recent months, this has begun to pay dividends with the release of significant new products.

In 1991, Niakwa made very good progress on all three components of our development strategy:

A. Portability

1991 saw the release of several new platforms:

- *NCR/Tower 32* - probably the most popular 68000 based Unix platform in existence.
- *Microsoft Windows 3.0* - probably the most significant new operating system environment in many years.

Basic-2C for MS-Windows is a feature rich implementation including true multi-user/multi-tasking support, unlimited partition size, dynamic font resizing, mouse support, and access to MS-Windows resources.

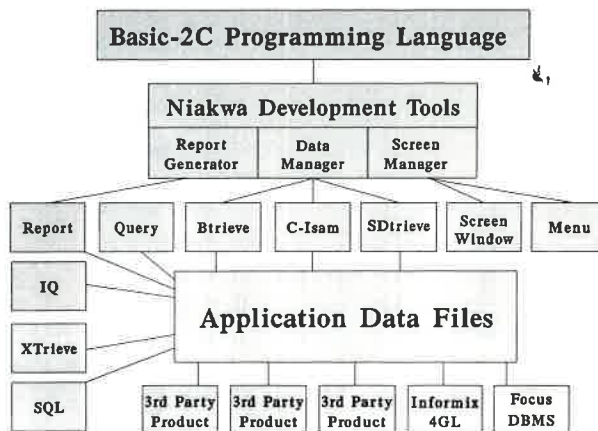
- *Phar Lap 386/DOS Extender* - a true 386 implementation of Basic-2C for MS-DOS offering unlimited partition size and improved performance.

the first time, a sophisticated ISAM is incorporated into the Basic-2x language. NDM offers transparent support of the industry's leading ISAM products such as Novell's Btrieve and Informix's C-ISAM while maintaining 100% portability of the application. In addition to the actual ISAM features, NDM includes many additional sophisticated features such as Data Dictionary support, automatic field type conversion, and the ability to utilize extended features specific to a particular native ISAM. Since the release of NDM, many major developers have already converted their applications to NDM and are seeing dramatic improvements in functionality and incredible increases in performance while being able to store the application data in industry standard file formats directly accessible by a wide variety of third party products.

- *Intelligent Query by Programmed Intelligence* - Intelligent Query (IQ) provides sophisticated ad hoc query capabilities to Basic-2C applications that utilize NDM. IQ is designed to be used by end users directly. A sophisticated menu based system is provided to allow even

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The Niakwa Development Environment



B. Language Enhancements

1991 saw the release of version 3.20 of Basic-2C. This version included substantial enhancements such as more variable names, more line numbers, improved resolution performance, support for XMS memory under MS-DOS/Novell, removal of the name "Basic-2C" from all start-up screens, and many other features.

C. Development Tools

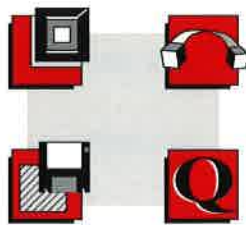
1991 saw the release of two components of the Niakwa Development tools product line:

- *Niakwa Data Manager (NDM)* - for

INSIDE...

Bluebird sells AS/400 and RS/6000

Niakwa's Bulletin Board System



Basic-2C Connection

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News

DR DOS and Basic-2C Soar

Craig Freeman, owner of Software Systems Company, is based in Culver City, California. He has been working with DR DOS for a few months, and has done some testing of DR DOS with Basic-2C. Below are his findings.

Microsoft sells various versions of MS-DOS including V3.3, V4.01 and V5.0. But DR DOS 6.0 from Digital Research is clearly superior, particularly when used in conjunction with Niakwa's BASIC-2C RunTime System.

Testing was performed on a 40MHz, 386 PC with a 213MB Maxtor IDE Disk Drive, SuperVGA display and 4MB of internal memory. I installed all three MS-DOS versions plus DR-DOS in succession. Software testing included BASIC2C in standard mode and with Windows 3, Word Perfect 5.1, Lotus 1-2-3 Version 2.2 and 2.3, etc. Here's what I found:

■ DOS 3.3 was awkward because it supports a maximum of 32MB per partition, requiring the drive to be divided into C:, D:, ... and J:. Expanded memory support was absent so QEMM was required (at extra cost) in order to support the expanded memory needed for Lotus and Windows. No disk caching nor defragmentation was supplied so disk performance was abysmal. Scratch DOS 3.3.

■ DOS 4.01 supported larger disk partitions so the drive was divided in half to form C: and D:. Expanded memory support from EMM386.SYS supplied with DOS 4.01 was adequate. However, the disk caching software supplied with DOS 4.01, SMARTDRIVE.SYS, was so slow that the system tested slower with the disk cache enabled than without it! DOS 4.01 also ate up more memory, leaving less than DOS 3.3 for RTI, Wordperfect, etc. DOS 3.3 and QEMM was starting to look pretty good by comparison, albeit more expensive.

■ DOS 5.0 had all the benefits of 4.01 plus a handy way of freeing up memory by loading DOS, disk cache and other TSR's into the otherwise unused space between 640K and 1MB. That gave me a pleasing 620K to play with before loading Niakwa's security and SHARE (for Windows).

However, DOS 5.0 is known to conflict with more than 40 different brands of PCs. On my 33MHz, 386 PC DOS 5.0 proved to be totally incompatible with the diskette drive (a Teac 1.2MB!) so I had to start over using a 40MHz version with a slightly different BIOS. That fixed the diskette problem but then my tape drive wouldn't work (a problem which was corrected by eliminating expanded memory but then Lotus with Allways wouldn't run!). Installation required six diskettes and the manual was a bit confusing.

DOS 5.0 did include a handy task swapper which permits switching back and forth between different tasks. In the interest of time, I skipped installing the graphical "SHELL" which looked better than the one in DOS 4.01. In all, almost five hours was needed to install and tweak DOS 5.0 for the best performance. In the end, I had more memory and miserable disk access speed.

DR DOS 6.0 came on just two diskettes and the manual was noticeably better than anything from Microsoft. The installation program asked all the right questions and it virtually installed itself. In DOS 5.0 you must decide in advance how much memory will be used for disk caching and how much will be left for extended or expanded memory. DR-DOS's disk cache has a handy 'lending' feature that automatically frees up whatever memory is needed by other software - eliminating a number of difficult computations.

Using the built in memory management features, I was able to get an amazing 699K of free memory.

Typing DISKOPT from any DOS

prompt brought up a disk defragmentation program. It ran several times faster than the SpeedDisk utility in Norton 4.5 or 5 - mainly due to the fact that the disk caching utility worked together with the defragmentor for optimal results.

I typed TASKMAX and got a reminder to press CTRL+ESC. After loading BASIC2C, I pressed the magic keys and got a handy menu with HELP that let me start WordPerfect 5.1 as a second task. A hot key later I was back to BASIC2C in under a second. DR DOS built a menu of the available tasks — I went on to a third and then fourth task. My only regret was that TASKMAX would not support two simultaneous sessions of BASIC2C. I found it was also a very good idea to kill all of your tasks before rebooting your PC (if you like to keep your FAT intact).

Typing SSTOR brought up a new function which served to double the storage capacity of the D: drive! In a few minutes, the system defragmented and compressed 80MB of data into less than half that amount and reported 210MB of total capacity on D: alone! I copied a 10MB BASIC2C data file from C: to D: and noticed that less than 1MB of storage space was actually consumed - representing a 10-to-1 compression rate!

When I ran my home-built disk access time test, a wonderful fact became obvious - since only 1MB of disk storage was actually used to hold the entire 10MB file, the whole file fit easily into cache memory. The disk light rarely lit and a 32-sector BMT read screamed along at better than 4MBytes per second or just 0.13ms per DOS sector!

For a real-world test, I ran a general ledger sort program that read 8,430 records, sorted them in two passes and then rewrote them twice using an inverted merge. The whole process involving almost a dozen program loads took a mere 35 seconds instead of 115 seconds using

(continued on page 7 — see DR DOS)

Bullets

- **AUSTRALIA** - Bentleys Computer Services participated in the conversion of a Wang 2200/CS system to a Novell, 8-User, system which incorporated the Niakwa Data Manager specifically for use as an improved access method. An application which consisted of 8,000 Grain Grower records, and approximately 20,000 line items went from a standard processing time of 6 hours down to 10 1/2 minutes! During the prime harvest season, one day a week had to be dedicated to these calculations, which can now be done in literally minutes.
- **Windsor, ON** - Compu-Quote, Inc. develops and maintains rating services written in Basic-2C for the Property/Casualty insurance industry in Canada. They support DOS, Novell, Xenix/UNIX, VAX, and Wang 2200 for over 1,000 insurance brokers and several insurance companies.
- **NETHERLANDS** - Akzo Systems Nederland bv last month reached a new milestone of 1,300 installations of their Car Info CD-ROM Package! This Basic-2C based package catalogs car parts and color information, and is sold to small body shops usually under MS-DOS or SCO-Xenix based systems.
- **Stafford, Texas** - Texas Insurance Computer installed a new 32 user Novell System using the 3.20 Revision of Basic-2C at Craven/Warren & Company. Craven/Warren is in the property and casualty insurance business and the bond business. The change over to the new system was accomplished in three days with no problems experienced. Users report instantaneous response times compared to several second delays experienced with the former system.

Intervendor Cooperation — USI & CDS



Charlie Spring
United Systems
Integration

Montvale, NJ - Imagine, a Basic-2 system making beautiful music. Two data processing consultants orchestrated a pure symphony for MusicCorp, a musical instrument manufacturer.

Working cooperatively, Cardinal Data Systems (CDS) in New Jersey and United Systems Integration (USI) in Washington, DC, scored a software composition using Niakwa and solved a problem for USI's client.

MusicCorp of Charleston, South Carolina, asked Charlie Spring, President of USI, to select a system to upgrade their slow 40 user system that could not sustain large files or run industry standard software.

MusicCorp's options came down to two choices - networking or UNIX. To Larry Pack of CDS, the challenge struck the right note. CDS groups programmers, analysts, and customer support personnel in New Jersey, Pennsylvania, and Massachusetts. CDS's has produced experience-based manuals, textbooks and resources. They support more than 350 software systems and maintain relationships with several hardware vendors.

"UNIX is a natural growth for most people using the Wang 2200, but people don't know how to do it. People know how to put up PCs," said Mr. Pack. However, for MusicCorp, networking was inappropriate because it would mean replacing all existing terminals, printers, and wiring with new PCs and ethernet cabling. In addition, because the applications were not distributed, the marginal benefit of having PCs vs. dumb work stations would be inconsequential," said Mr. Pack. "On the other hand, implementing a UNIX solution would require more in-depth expertise than USI had in house at that time."



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The system was assembled and all software converted at CDS's staging center in Clinton, New Jersey. This dress rehearsal of specific applications using system tapes provided by Music World was flawless and many, many times faster than its predecessor.

The two project leaders worked in tandem to assemble the details of the final configuration. CDS did all the labor in the initial setup eliminating duplication. By the end of hands-on training, USI was able to add users' devices and applications without CDS support. However, CDS remains available to provide support at all times. In five months there has only been one support call to CDS from USI.

The project met a tight deadline. It was installed in under three weeks and ran parallel at MusicCorp's request until the system was in place. "We did this for 30 days," explained Mr. Spring, "and cut over on schedule. It was 100% successful."

Intervendor cooperation fits with the unique strengths of small consulting firms whose successes can be amplified by collaboration. BC

Making International Tracks...

Mundelein, IL - There is good news in spite of what we are hearing about the US economy these days. Niakwa continues to grow in sales annually and has continued to meet its profit goals as well. Part of this success is attributable to the wide range of vertical markets Basic-2C distributors represent, everything from Animal Feed, Building Engineering, Cable TV, and Hotel Management, to Supermarkets and Fashion Wholesale, just to name a few. Another factor that adds to our stability is that Basic-2C has been a worldwide product since its introduction in 1984. At our first seminar on October 10, 1984, several attendees arrived from Europe just to see what this new language was. They were obviously pleased with what they saw, and recognized an opportunity to take this product back with them, which resulted in Basic-2C reaching an International market within the first few months. We now have Master Distributors in Australia, Belgium, France, Germany, The Netherlands, New Zealand, Singapore, Spain, Sweden, and the United Kingdom who help to promote the Basic-2C language among software developers worldwide. This has resulted in over 40% of our sales coming from outside of North America.

As part of keeping in touch with this market, Niakwa holds an annual European Conference in September for its Master Distributors and their associated International Distributors. These conferences have been well attended, and give us an opportunity to benefit from meeting our customers, as well as hearing what their individual product needs are. But, naturally, not all Distributors are able to attend our annual conference, so in December we decided to supplement this with survey calls to various International Distributors in Austria, Belgium, Denmark, France, Germany, Ireland, Italy, Netherlands, Sweden, Switzerland, and the United Kingdom. With all of the new products that Niakwa has introduced

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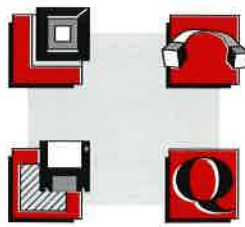
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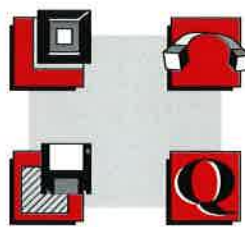
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1992

(continued from page 1)

unsophisticated users to easily generate queries. In addition, IQ provides a report generator that is also suitable for use by users.

1992 will see a continuation of our efforts on all three components of our development strategy:

A. Portability

In addition to the projects described above, another very important project was quietly underway at Niakwa during 1991. This project was the re-write of Basic-2C source code from assembler to "C" - we refer to this as the "C" Port. With over 100,000 lines of source code, this was a major project that we are pleased to announce has been successfully completed. The goal of this project is to allow us to provide versions of Basic-2C for many new platforms, such as the popular RISC based machines. This goal is now being realized with the following anticipated schedule:

- Basic-2C, revision 3.20, for the IBM RS/6000 is now available in beta release with first customer shipments scheduled for late April.
- Basic-2C, revision 3.20, for Digital/VMS is expected to be available second quarter.
- Additional platforms, such as SUN Sparc or MIPS based platforms may be available third or fourth quarter. Decisions on additional platforms will be made based on market demand - contact your Niakwa sales representative if you have interest in specific platforms.

The "C" version will be utilized for all future releases on all non-Intel platforms. All Intel platforms will continue to be based on our Assembler version in order to continue to provide the best possible performance and lowest possible code size overhead on these popular platforms.

A second major benefit of the "C" Port is that the lead time for rolling out new releases of Basic-2C on all platforms will be greatly reduced. This will be seen with Release IV where we expect to be able to roll out Release IV on all supported platforms within 9 months of the initial release.

In addition to platforms based on the C port, Niakwa plans to evaluate support of peer to peer MS-DOS based networks such as Netware Lite and LANtastic. This will likely lead to support for at least one, and possibly more, peer to peer networks in second or third quarter.

B. Language Enhancements

The highest priority development project for 1992 will be Release IV of Basic-2C. Release IV will provide developers with a modern, state-of-the-art development language that will significantly improve programmer productivity and be much easier to learn for newcomers to the language. Major features to be included in Release IV are:

- Long variable names
- Named subroutines
- Local variables
- Local line numbers
- Structured Constructs including:
 - DO/WHILE
 - DO/UNTIL
 - CASE/SWITCH
- Syntax simplification
- Generic terminal support
- Expanded mouse support
- Revised documentation geared more towards new developers (Wang 2200/CS compatibility will continue to be fully documented in a separate manual)

In addition, a large number of other significant enhancements are under consideration. Release IV is projected to be available on the first group of platforms in late '92.

C. Development Tools

1992 will see development of the third major component of the Development Tools - the Niakwa Screen Manager. Screen Manager will provide developers with a fully portable, sophisticated API that will allow easy development of sophisticated state-of-the-art GUI like user interface routines suitable for all types of screen management routines including data entry, menus, etc. Major features to be included in Screen Manager are:

- Graphical User Interface look and feel
- Character based to work on all terminals, all platforms
- Multi-level Application Program Interface (API)
 - Lowest level - read/write single characters
 - High level - display entire pre-defined window
- Screen Windowing functions
- Interactive screen designer
- Field editing/validation functions
- Optional integration with Niakwa Data Manager
- Mouse support (where supported by Basic-2C)

Screen Manager will be developed concurrently with Release IV and is projected to be available for first platforms in late '92.

1992 will also see the continued rollout of the Data Manager and IQ across all platforms, including new platforms such as the RS/6000.

Completion of Release IV and Screen Manager along with continued porting to new environments will complete the product strategy defined in 1990. At this time, the Niakwa Development Environment will consist of a highly portable, high performance, state of the art, high quality 3 GL language coupled with the powerful 4 GL capabilities of Data Manager and Screen Manager. A of course these products will be delivered with the same high quality and robustness that has been a Niakwa

(continued on page 7 — see 1992)

1992

(continued from page 6)

trademark for years.

We believe that these products will not only reinforce our clear leadership position in the Basic-2x market, but will also serve to make the Niakwa Development Environment competitive in the broader based application development market and therefore will draw new developers to the Basic-2x marketplace.

In closing, a few comments on projected release dates are in order. The projected product delivery dates stated in this article represent our best current estimate based on our current development agenda and priorities. But one of Niakwa's strengths is flexibility and the ability to respond quickly to changes in the industry and to changes in customer requirements. This was demonstrated in 1991 with mid-year decisions to add significant new products to the 1991 product calendar including Release 3.20, Microsoft Windows, and 386/DOS Extender products. Therefore we do have to state that projected product release dates given in this article are subject to change. BC

Geese Coach Companies on Effectiveness

When you see geese heading south for the winter ... flying along in V formation ... you might consider what science has discovered as to why they fly that way.

As each bird flaps its wings, it creates an uplift for the bird immediately following.

By flying in V formation, the whole flock adds at least 71% greater flying range, than if each bird flew on its own.

People who share a common direction and sense of community can get where they are going more quickly and easily because they are traveling on the thrust of one another.

When a goose falls out of formation, it suddenly feels the drag and resistance of trying to go it alone ... and quickly gets back into formation to take advantage of the lifting power of the bird in front.

If we have as much sense as a goose, we will stay in formation with those who are headed the same way we are.

When the head goose gets tired, it rotates back in the wing ... and another goose flies point.

It is sensible to take turns doing demanding jobs ... with people, or with geese flying south.

Geese honk from behind to encourage those up front to keep up their speed.

What do we say when we honk from behind?

Finally ... and this is important ... when a goose gets sick or is wounded by gunshots, and falls out of formation, two other geese fall out with that goose and follow it down to lend help and protection ... they stay with the fallen goose until it is able to fly or until it dies; and only then do they launch out on their own, or with another formation to catch up with their group.

If we have the sense of a goose, we will stand by each other like that.

Although we in the computer business do not necessarily identify with geese, we can learn from them. Heavy development loads, such as the one facing Niakwa in 1992, become more manageable if the people within the organization support each other every step of the way.

The source of this story is unknown. We thank and acknowledge the author for these words of wisdom. BC

DR DOS

(continued from page 3)

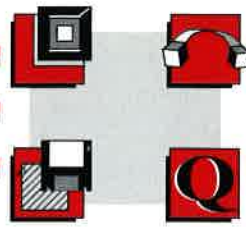
MS-DOS 5.0 (a 3.28:1 improvement!).

In short, DR-DOS 6.0 is a WINNER. For a list price of \$99.00 you get complete DOS compatibility, more free memory than with any other DOS version, the world's fastest disk caching software, an excellent defragmentor, a useful task switcher and a way to double the capacity of your hard disk with no performance loss. You also get lifesaving commands like UNDELETE and UNFORMAT as extra bonuses.

Having run DR-DOS 6.0 for a few months, a few facts have come to light that you should know:

- Always partition your disk into at least two partitions with the first partition, containing MS-DOS and the Niakwa security fingerprint, being left uncompressed.
- Avoid using the optional method for compressing your C: drive which puts DOS into an imaginary E: drive. The process slows down booting, uses some memory and I found it to be unreliable.
- Do use DR-DOS 6.0 on any computer you have. Most of the features work just fine on an old-fashioned PC/XT and most 286s will run just like 386 PCs.
- When using TASKMAX, you will find CTRL doesn't work the same as before. You will probably want to configure TASKMAX to use different keys or both BASIC2C and WP 5.1 will be a bit awkward to use.
- If you have any problems with your diskette or tape drives, enable DR-DOS's unique feature where multiple versions of your CONFIG.SYS file can be selected. Disable expanded memory and any hardware conflicts should go away (I haven't run into any yet but my bad experience with MS-DOS 5.0 indicates that you might need this handy feature on one PC or another).

Editor's Note: Niakwa has not formally tested Basic-2C with DR DOS and therefore can not support the use of Basic-2C with DR DOS 6.0. BC



Increase Performance on MS-DOS/NetWare Applications

The new Basic-2C RunTime Package for Phar Lap 386/DOS Extender (also known as Niakwa's 386 RunTime) for MS-DOS and Novell NetWare are designed to provide an **immediate performance increase** for applications being run on 80386 or higher based systems. Intended for performance/memory intensive applications, these little publicized products offer a significant performance increase by running under the 32-bit protective mode environment created by the Phar Lap 386/DOS-Extender. This alone provides an

approximate 20% increase in CPU operations performance*.

In addition to this performance increase, the Niakwa 386 RunTimes also contain the following features right out of the box:

- Extended memory support for applications beyond 640K. Memory use is limited only by the physical memory available — overlays are no longer required due to memory constraints. The RunTime, user partition, and external routines will all reside in

extended memory (above 1MB). This will leave approximately 400K of base memory available for programs called by \$SHELL.

- Support for the standard Niakwa RunTime so that applications that must be run on 80286 based systems or less can still be run on the same network. This allows for any combination of Niakwa 386 and standard RunTime users up to the user limit.
- Full support for the Niakwa 2227 and plot drivers.
- Support of all Revision 3.20 MS-DOS and Novell NetWare features.

The above features are all available without any effort on your part! In addition, the following optional features are also supported:

- Virtual memory support is available through the Phar Lap 386/VMM Development and Redistribution Packages**.
- Niakwa External call support is available through supported languages and the Phar Lap 386/DOS-Extender SDK and Redistribution Packages**. External routines may use extended memory, base memory, or both.

In brief, the Niakwa 386 RunTimes for MS-DOS and Novell NetWare offers an immediate performance increase to your end users without any effort on your part. Imagine the satisfaction of your power hungry users with this product! Contact your Niakwa Account Manager ordering information (upgrades are available). BC

Bluebird and Avnet Join Forces

On February 24, 1992, Bluebird Systems announced an agreement to transition all its hardware related activities to Avnet Computer.

Avnet Computer, a distributor of brand name systems and mass storage devices, offers products from dozens of leading manufacturers. Avnet will join Bluebird and lend its talents in supplier relationships and physical distribution to you.

This agreement was made for a few reasons. One of the benefits Bluebird sees is that a distributor can have more efficient delivery practices in place - which, of course, services the customer better. In addition, this union allows Bluebird to focus its efforts on the development and enhancement of software products.

For more information on the Bluebird/Avnet relationship, and how it affects you, please contact Jim Lackey at Bluebird Systems. Jim can be reached at (619) 438-2220, extension 337. BC

Order Your RS/6000 Basic-2C RTP From Niakwa - Now

Niakwa is happy to report that Basic-2C for the RS/6000 is shipping April 24, 1992.

Due to the anticipated demand, pre-orders of this product are being accepted. Orders will be shipped on a "first come, first serve" basis.

For further information, and to order, please contact your Niakwa Account Manager, today. BC

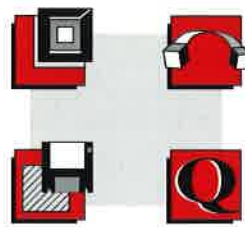
* Our benchmark testing has shown an approximate 20% performance increase in CPU operations over the standard MS-DOS or Novell NetWare RunTimes. Your actual performance increase may vary from this value.

** The Phar Lap 386/DOS-Extender SDK, 386/DOS-Extender Redistribution Package, Phar Lap 386/VMM Development Version, and 386/VMM Redistribution Package must be licensed from Phar Lap Software, Inc.

CURRENT PRODUCT REVISIONS

The following is a complete list of the current Niakwa Development Environment products and their respective revision numbers as of March 16, 1992. If your version is not current, contact the Niakwa Sales staff for a update.

Product Number	Product Name	Development Package Revision Number	RunTime Package Revision Number	Revision Date
1A	WANG MS-DOS	2.01.20	2.01.20	7/15/88
		3.00.02.00.W	3.00.02.05.W	5/15/89
1A-DEM	WANG MS-DOS Demo	NA	3.00.05.05.W	7/15/88
1A-SCD	WANG MS-DOS SCD	NA	2.00.00	7/15/88
2A+B	IBM MS-DOS	2.01.20	2.01.20	7/15/88
		3.20.02.00.I	3.20.02.00.I	9/9/91
2A+B-DEMO	IBM MS-DOS Demo	NA	3.20.02.00.I	9/9/91
2A+B-SCD	IBM MS-DOS SCD	NA	2.00.00	7/15/88
3A	WANG APC	3.20.13.00.X	3.20.13.00.X	12/6/91
	XENIX 3 or V		(286 RTP)	
3A-SCD	WANG APC SCD	NA	2.00.00	7/15/88
4A+B	Novell NetWare	2.01.20	2.01.20	7/15/88
		3.20.02.00.I	3.20.02.00.I	9/9/91
5A	ALTOS XENIX 3	3.20.13.00.X	3.20.13.00.X	12/6/91
			(286 RTP)	
6C,D,E	DEC MicroVAX	2.01.02	2.01.02	6/15/87
7A+B	SuperDOS	2.01.17	2.01.17	5/15/88
		3.20.02.00.S	3.20.02.00.S	9/9/91
8A	Bull XPS-100	3.01.03.04.U	3.01.03.04.U	8/1/91
9A	ALTOS 2000	3.20.13.00.X	3.20.13.00.X	12/6/91
	XENIX V		(286 RTP)	
10A+B	SCO XENIX V	3.20.13.00.X	3.20.13.00.X	12/6/91
			(286 RTP)	
13A	WANG APC	Merged with 3A	NA	NA
	XENIX V			
14A	NEC ASTR-IX	2.01.09	2.01.09	8/9/88
15A	ALTOS 600, 1000, 2000	3.20.14.01.A	3.20.13.00.A	12/6/91
			(386 RTP)	
16A	ALTOS 400, 500, 700	3.20.14.01.A	3.20.13.00.A	12/6/91
			(386 RTP)	
18A+B	SCO System V	3.20.14.01.A	3.20.13.00.A	12/6/91
	386 UNIX		(386 RTP)	
19A	Bull DPX/2	3.01.03.04.U	3.01.03.04.U	8/1/91
20A+B	INTERACTIVE UNIX	3.20.14.01.A	3.20.13.00.A	12/6/91
			(386 RTP)	
21A	NCR TOWER 32	3.01.03.04.U	3.01.03.04.U	8/1/91
22A	ALTOS 5000	3.20.14.01.A	3.20.13.00.A	12/6/91
			(386 RTP)	
23A+B	AT&T UNIX (Intel)	3.20.14.01.A	3.20.13.00.A	12/6/91
			(386 RTP)	
24A+B	MS-Windows/MS-DOS	3.20.02.00.I	3.20.11.00.N	10/14/91
25A+B	MS-Windows/Novell NetWare	3.20.02.00.I	3.20.11.00.N	10/14/91
26A+B	DOS/386/MS-DOS	3.20.02.00.I	3.20.15.00.P	2/7/92
27A+B	DOS/386/Novell NetWare	3.20.02.00.I	3.20.15.00.P	2/7/92
102A+B	NDM for MS-DOS	1.00.06	1.00.04	1/15/92
104A+B	NDM for Novell NetWare	1.00.06	1.00.04	1/15/92
202A+B	IQ for MS-DOS	1.00.00	1.00.00	12/23/91
204A+B	IQ for Novell NetWare	1.00.00	1.00.00	12/23/91



Bluebird and IBM – A Winning Combination

AS/400

In an unprecedented move, IBM Corporation has granted Bluebird its first-ever two-tier contract to provide AS/400 midrange systems to Bluebird Resellers. Xtend/400 provided exclusively by Bluebird Systems, is a powerful software product which allows migration of Basic Four compatible applications to the IBM AS/400.

This means any Basic Four minicomputer system can be re-hosted on this popular family of IBM systems, and can even tie into IBM's industry-leading relational system. And, since the AS/400 is not a "commodity" product, resellers can preserve their hardware and software margins, more so than with UNIX or networked-based PCs.

RS/6000

With the upcoming release of Basic-2C on the IBM RS/6000, you may have asked yourself: "Where will I get a system when I sell one?" The answer: Bluebird Systems, Niakwa's parent company.

IBM has granted Bluebird a unique two-tier remarketing agreement wherein Basic-2C resellers can obtain these systems for resale from Bluebird, without the fuss and quotas of dealing directly with IBM. Simply submit a Value Added Installer (VAI) Application, and upon approval, you're all set.

For more information, contact Jim Lackey at Bluebird Systems (619) 438-2220, extension 337. BC

Altos RTPs Sold Separately

In a recent move to assist Resellers, Bluebird Systems announced the ability to purchase Basic-2C for Altos RunTimes separate from hardware. For more information, please contact your Niakwa sales representative. BC

Platform Update - Multi-User

Shared Logic Systems

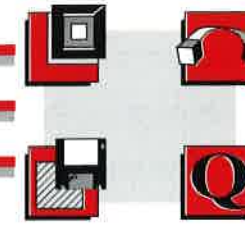
Computer	Operating System
ALTOS 686, 886, 1086, 2086, 3086	XENIX 3
ALTOS SERIES 2000	XENIX V
ALTOS 400, 500, 600, 700, 1000, 2000, 5000	SYSTEM V
BLUEBIRD SL/DH/TW SERIES	SUPERDOS
BULL XPS 100	UNIX V
BULL DPX/2 200	BOS
BULL DPX/2 300	BOS
BULL MICRAL 600/ix	BOS 386
DEC MICROVAX II	VMS
DEC VAX SERIES	VMS
IBM AT & IND. STANDARD 286	SCO XENIX V 286
IBM, PC, XT, AT	SUPERDOS
IBM PS/2 SERIES	SUPERDOS
IBM PS/2 SERIES	SCO XENIX V
INDUSTRY STANDARD 386, 486*	SCO UNIX V/386, 486
INDUSTRY STANDARD 386, 486*	INTERACTIVE 386/ix UNIX
NCR SYSTEM 3000 SERIES*	AT&T UNIX (NCR)
NCR TOWER 32	SCO UNIX V
NEC ASTRA-XL SERIES	ASTR-IX
RS/6000	AIX**
WANG 280	SCO XENIX V 286
WANG 380*	SCO XENIX V 386 AT
WANG APC	XENIX 3.0
WANG APC	XENIX V
WANG DX 2000 (DYNAMIX)*	SCO UNIX V/386
WANG PC 300/33C SERIES	SCO UNIX V/386
WANG PC 480/25C	SCO UNIX V/386
WYSE PC 286 SERIES	SUPERDOS
WYSE PC 386 SERIES	SUPERDOS
WYSE 5000	AT&T UNIX (WYSE)

Distributed Logic Systems (Networking)

IBM & ALL APPROVED COMPATIBLES	NOVELL ELS I
(SEE SINGLE-USER MS-DOS)	NOVELL ELS II
	NOVELL ADVANCED NETWORK
	NOVELL E/TI NETWORKING
	SPERRY USERNET

*Intel 386 and 486 based systems

**To be released at the end of April 1992



Platform Update - Single User MS-DOS

Basic-2C has been tested on the following computers

AMSTRAD PC1512	HONEYWELL PC AP	NEC APC IV
• ARCHE/RIVAL 286	HP VECTRA	SPERRY PC/IT
•+ AST PREMIUM 286	HYUNDAI SUPER 286C	TANDY 3000
AT&T 6300, 6300 PLUS	•+ IBM PC, XT, AT	TELEVIDEO TELE-PC
BLUEBIRD SL/DH/TW SERIES	• IBM PC, XT, 286	TELEVIDEO TELE-XT
COMMODORE PC-10, PC-20	•+ IBM PS/2 MODELS 30,50,60,70,80	TI BUSINESS PRO
COMPAQ DESKPRO	30/286, 50S, 70Z/386	• TOSHIBA T3100, T3200
COMPAQ PLUS	ITT XTRA XP	TULIP COMPACT
COMPAQ PORTABLE	• KAYPRO 1610	UNISYS PW2/500-12
• COMPAQ PORTABLE III	• KAYPRO 16/E	• UNISYS PW2-500
• COMPAQ 286 DESKPRO	NEC APC IV	UNISYS PW2-800
• COMPAQ 386 PORTABLE	• KAYPRO PC, PC10, PC30	•+ WANG PC, APC
• COMPAQ 386 DESKPRO	• KAYPRO 286i	•+ WANG PC280
• COMPAQ 386/S DESKPRO	• KAYPRO 386+	•+ WANG PC380, 382
• COMPAQ 386/20E DESKPRO	• KAYPRO 2000+	•+ WYSE PC, PC286, 2108, 2200
COMPAQ 386/25 DESKPRO	LEADING EDGE PC (D)	3216, 3225
• COMPAQ LAPTOP SLT/286	MAI/BASIC 4 PC	XEROX 6060PC
COMPUTERLAND PC	• MULTITECH LAN 500 (ACER) ✎,	XEROX 6065
DEC VAXMATE	•+ MULTITECH 700, 710 (ACER)	ZENITH 150 SERIES
DELL SYSTEM 220/286	•+ MULTITECH 900, 910 (ACER)	ZENITH 248 SERIES
EPSON EQUITY I, II, III	• MULTITECH 1100 (ACER)	• ZENITH SUPER SPORT/286
	NCR PC6	

• Tested and passed for 2.01. To date no previously approved compatible has failed the 2.01 compatibility testing.

+ Tested and passed for Release 3.00. To date no previously approved compatible has failed the 3.00 compatibility testing.

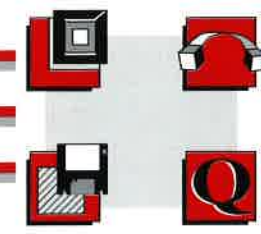
Basic-2C is currently operating on the following computers*

AMAX 286	COMPUADD 286	MITSUBISHI 286	TOSHIBA T5100
AMSTRAD PC1640	CORDATA AT	NEC POWERMATE	ULTRA COMP 386
AMSTRAD PC2086	DTK 286-12	NEC POWERMATE 286+	VOLLEMAN 3.XX
APRICOT 660I	DTK 286-16	NIMBUS	WANG LAPTOP
ARCHE TECHNOLOGIES	EPSON PC/AX2	NOVELL 386 NETWARE	WANG PC240
AST PREMIUM 386	EVEREX STEP SYSTEMS	OLIVETTI 386 SX	WANG PC250
AT&T 6386	G2	OLIVETTI PCS 286	WANG PC260
BITAC	GATEWAY 2000	PACKARD BELL 286	WANG PC350
CDS AT	INTEL 386	PARTNER AT	ZENITH 286E
CLUB AT 210	LASER	PARTNER PC XT	
COMMODORE PC 30, 40, 50	MITAC MISTATION 35	PHILIPS NMS	

* It has been reported to Niakwa that Basic-2C operates properly on the following computers. Be advised that Niakwa has not tested Basic-2C on these machines and therefore cannot be responsible for incompatibilities or other problems that may arise when using Basic-2C on these computers.

Niakwa asks Basic-2C users to supply information about known compatible and noncompatible PCs running with Basic-2C that are not on the Platform Update Status chart.

Announcements



Niakwa's Bulletin Board System is Alive!

Niakwa is pleased to announce the availability of the Niakwa Bulletin Board System as of February 24, 1992.

The Niakwa BBS was developed in response to your suggestions at past Niakwa conferences. We hope the Niakwa BBS provides an additional level of support and service to our developers.

The Niakwa BBS is available to all Niakwa Developers **free of charge***. Almost any type of PC with a modem and communications software is able to access the Niakwa BBS system. Modems up to 9600 baud are supported (the BBS will automatically adjust to the speed of your modem).

To access the BBS call 1-708-634-NBBS (1-708-634-6227). The communications protocol is 8 bit, no parity, 1 stop bit. Hours of operation are 24 hours a day.

If you do not have a Niakwa BBS login, you can still use the Niakwa BBS. Just login in to the Niakwa BBS with the login name of GUEST.

When logging in as GUEST, developers are able to use all features of the Niakwa BBS except the ability to upload files and send messages to other developers. Once logged in as GUEST you will also be able to use the COMMENT TO SYSOP option. This will allow you to send a message to the SYSOP so that we can provide you with your own personal login.

NOTE: Your login and password will be provided to you by phone or fax once you are confirmed as a current Niakwa Developer.

Niakwa BBS instructions are available on-line for downloading. These instructions provide basic Niakwa BBS commands for accessing the various Niakwa BBS features.

Once logged on the BBS, developers will be able to view and download Niakwa Technical Notes, Marketing Bulletins, Patches, Updates, Products notes, Current Product Revisions, current platforms supported by Niakwa, and bug reports. All

downloadable files are stored in ASCII format or standard print format.

Another excellent feature of the Niakwa BBS is that developers will be able to leave questions and messages for our staff. If you have a technical question or a suggestion that does not need an immediate phone response, just leave your question for the SYSOP and you'll have an answer as soon as possible (we check for messages at least once a day).

Authorized developers, not guests are able to "chat" with each other on the developers forum. Developers are able to leave messages to any or all of the developers who use the Niakwa BBS. We hope this encourages you to exchange ideas and "tips" with each other.

One feature planned for the future will allow developers to upload descriptions of their applications so other developers can contact them if they have a client that

had need of a special application which they do not offer. Other features will be added based on your suggestions.

If you have any questions or comments about the Niakwa BBS, or have any ideas on new features, please contact or leave a message to our Niakwa BBS SYSOP.

Disclaimer: *In no event shall Niakwa be held liable for any consequential, incidental, indirect, or special damages under any circumstances due to the use of the Niakwa BBS or any files downloaded from the Niakwa BBS. Niakwa assumes no responsibility for any decisions made or actions taken on the part of the authorized developer or his clients because of the Niakwa BBS. In addition, Niakwa cannot guarantee total confidentiality for any messages left to Niakwa or other developers on the BBS.*

*Normal telephone charges still apply. BC

Marketing Bulletin	
North American	International
30 December 5, 1991 Basic-2C Revision 3.20 for Intel Xenix/UNIX	30 November 20, 1991 Basic-2C for Microsoft Windows - Special Upgrade Promotion
31 January 14, 1992 Niakwa Supports Intelligent Query for IBM MS-DOS and Novell NetWare	31 December 5, 1991 Revision 3.20 for Intel Xenix/UNIX
32 January 14, 1992 Bundled RunTime Packages Available for IBM MS-DOS and Novell NetWare	32 January 14, 1992 Niakwa Supports Intelligent Query for IBM MS-DOS and Novell NetWare
33 February 12, 1992 Replacement RunTime Reset Fee	33 January 14, 1992 Bundled RunTime Packages Available for IBM MS-DOS and Novell NetWare
34 February 13, 1992 Basic-2C for Phar Lap 386/DOS Extender-IBM MS-DOS and Novell NetWare	34 February 13, 1992 Basic-2C for Phar Lap 386/DOS Extender-IBM MS-DOS and Novell NetWare
35 February 13, 1992 Niakwa Bulletin Board System	35 February 13, 1992 Niakwa Bulletin Board System

Marketing Bulletins are mailed to Resellers of Basic-2C. If you are not a Reseller of Basic-2C, but would like to receive a specific Marketing Bulletin, please contact an authorized Niakwa Reseller, or Niakwa directly.

Niakwa to Begin a New Ad Campaign

Niakwa is pleased to say we are developing a new advertising campaign. The focus of this effort is Quality — and most of the inspiration will come from you...

We view this new venture as an extension of the six-panel piece we have been using since last year. The campaign not only discusses Niakwa and our Language, but you, your company and possibly your product.

Over the years, Niakwa has collected a binder full of letters from Resellers and Endusers alike. The letters are quite impressive to us, and we no longer want to keep them a secret. Quotes and letters will be "categorized" by heading — Portability, Product, Support.

We are proud of the mutual respect and loyalty we enjoy with our Resellers.

If you would like to participate in this venture, please contact Lesslee Dort for

more information. She can be reached at phone (708) 634-8700, fax (708) 634-8718, or BBS (708) 634-6227.

Thank you to all who have contributed and to those of you who will be reinforcing one of Niakwa's most important goals — Quality of Portability, Product and Support.

Below is a sample of the material we have received.

Niakwa delivers...

Portability

Basic-2C* ... the development environment of choice.

Niakwa's Basic-2C allows Wang 2200 users to work on more than 100 of the industry's most popular computers, operating under no major system — SuperDOS, MS-DOS, Novell, Xenix, UNIX, and VMS.

Not only do we deliver portability, we deliver compatibility. The thousands of applications written on Basic-2C are source and object code compatible on any platform supported by Basic-2C. Users can simply load a diskette and run their applications on the latest hardware technology — almost modifying their applications software or data files.

The portability — one means with our authors have used Basic-2C to create thousands of applications that are equipped worldwide.

Wang Management Services of America, Inc.
2200 North Washington Avenue
Mesa, AZ 85201
Telephone: (708) 634-8700 Facsimile: (708) 634-8718

"Niakwa's strength is the overall portability on the approved platforms without any new manipulations!"

Maurice van Cawenbergh
Group 2000, Belgium

"Basic-2C's portability is a key to their success."

John Grubbs
Jaguar, USA

"Basic-2C allows us to freely decide which operating system to choose."

Rainer Hirschberg
GTS, Germany

Niakwa delivers...

Product

Basic-2C* ... the development environment of choice.

At Niakwa we know how to deliver a comprehensive language product.

Because of our strong customer orientation and nearly 20 years of experience — from our roots as a VMS on the early 70s to four major releases of Basic-2C under IBM — we have a track record for providing:

- Robust language features and excellent manual to creating solid applications software.
- Documentation that's all inclusive, comprehensive and easy to use.
- A quality product with a reputation for working the first time every time.

That's why a complete product — one reason Wang Laboratories chose Basic-2C as the Basic-2 software for its new UNIX based computers.

Wang Management Services of America, Inc.
2200 North Washington Avenue
Mesa, AZ 85201
Telephone: (708) 634-8700 Facsimile: (708) 634-8718

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A reputation for product reliability.

At Niakwa we know that's just the first step to a satisfied customer. We back up our products with knowledgeable sales consultants, a dedicated technical support team, and an established worldwide distribution network. The results are impressive:

- 95% of orders are shipped within 48 hours.*
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A commitment to delivery support — one reason Basic-2C has become one of the world's most popular Basic languages.

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"The documentation for the new features are clear and readable."

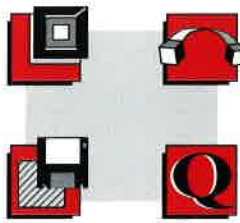
J. Guzman Rubert
E.D.E.F., Spain

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Software Systems Company, USA

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Orion Systems, Ltd., USA



RMA's

We would like to take a moment to thank you for the effort you have given our request for clearing up past due replacement RunTimes. We sincerely apologize for any inconvenience this may have caused you. However, due to the incredible amount of money we are showing on our books for these RunTimes, we have been forced to give this matter our most serious attention.

With the implementation of our new in-house system, we have made every effort to make the tracking of replacements as simple as possible, both for you and for us. We are now able to send out reminders for RunTimes where a return is required. We also send return labels and two copies of the RMA paperwork with every replacement order. All you need to do is put one copy of the RMA paperwork in the package with your return RunTime and place our return address label on the outside. This enables us to credit the proper RunTime to the correct RMA number, thereby eliminating any confusion in the future. As in the past, we are still recommending

that you ship your package by a carrier, such as UPS, Federal Express, or TNT SkyPak, who have the ability to trace it should it get lost somewhere along the way. Unfortunately, we cannot be responsible for shipments that we do not receive. We have also found that when our customers use Purchase Order Numbers, they find it much easier to trace the replacement to the exact customer it was ordered for.

We will continue to give RMA tracking our undivided attention. As in the past, we will be as flexible as possible. If you find yourself in an unusual situation where the RunTime can't be returned within the required 30 day period, just give us a call, and we will make every effort to work things out.

During an average month, we ship several hundred upgrade, exchange, and replacement diskettes, so we are well aware of how time consuming the tracking of RMA's can be. We sincerely appreciate everything that you have done to make our job easier, and we will continue in our efforts to make your job

easier. It is our goal to have all previously due RunTimes cleared up before Revision IV is released. With your help in getting your RMA's back to us as quickly as possible, we are able to continue our replacement, upgrade, and exchange programs. BC

Name That Product - An Update

The votes are in. The last two editions of the *Basic-2C Connection* have brought you news of Niakwa's on going search for a new name for Basic-2C.

Niakwa is currently undergoing trademark checks on the leading contenders.

We will be sure to keep you informed as information comes available. Until then, thank you for all your suggestions. Not a bad one in the bunch. BC

children, two have completed college and are on their own and the youngest, David, is a Junior at Grinnell College in Iowa. In their spare time Gary and Lynne enjoy a variety of activities including overseas travel. They've managed to visit England, France, Germany, Austria, Greece, Turkey, and Jamaica and look forward to some new adventures in the future.

Editor's Note: As some of you may know, Kevin Brownell has decided to pursue other adventures in his life. In an effort to capture a dream of his, he has gone into business with a friend. We, at Niakwa, support his decision and wish him good fortune. As a matter of fact, Kevin is becoming a Niakwa Reseller. BC

Welcome...



Erik Coleman joined Niakwa this past November as a Product Analyst. Erik is a 1989 graduate of the University of Illinois at Urbana/Champaign

with a Bachelor's of Science degree in Computer Engineering. Erik comes to Niakwa with extensive technical support experience, most recently with JWP, Inc. as a Senior Customer Engineer.

A life long resident of Lake County, Illinois, Erik enjoys photography, skiing, and many other sports. Erik is also a train buff, collecting models, memorabilia, and photos of trains.

As a Product Analyst, Erik is responsible for product support, production setup, documentation, and other special projects. Erik is excited about the future challenges for both himself and Niakwa.



Gary Rapp started as Sales Manager on December 2, 1991, so many of you have already "met" him on the telephone. Gary has been in the computer business for

28 years and brings a wealth of experience to the task.

Gary and his wife Lynne have three

Ask Andy

? Occasionally I get the message: **UX:LP ERROR nothing to spool** on the console of my UNIX installations for no apparent reason. Where is this message coming from?

A: Whenever a \$CLOSE is issued against a spooled print class device under UNIX, the UNIX SPOOL facility is signaled and the SPOOL file can now be directed to a printer. If there is nothing to be output then the operating system generates the error you are seeing. This message can be suppressed by adding the /dev/null parameter to your device statement. For example:
`$DEVICE(/215)=">(lp -s 2>/dev/null) ALF=N`

The -s eliminates all non-error messages and the >2/dev/null eliminates the error output. It should also be noted that usually there is no need to eliminate the error output for devices assigned to foreground processes, but it should always be included for devices assigned to background processes. Failure to do so could result in the process hanging.

? I am preparing to install a Revision 3.20 RunTime on a new Novell Network. It is my understanding that there have been some changes to the Gold Key security with this release. What are the changes and how do they affect my client sites?

A: The Revision 3.20 Gold Key security has been updated with several enhancements and corrections. These include:
■ A new environment variable, **NIAKWA_RUNTIME** can be set to point to an alternate

directory containing the GOLD KEY and Development system files.

- In the event the security fingerprint is damaged or destroyed, a FIELD LEVEL RESET can now be performed. This process will increment the number of available installs on the original GOLD KEY disk, thus eliminating the need for ordering and returning replacement RunTimes. This process can only be performed on **NEW 3.20 GOLD KEYS**.

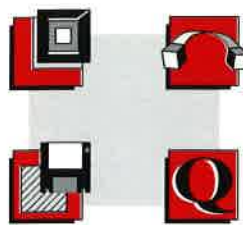
Although the Niakwa RunTime security has been updated, the process of installing and de-installing GOLD KEY security as documented in the past has not changed. You still must:

- Install from a workstation.
- Be logged in as SUPERVISOR (equivalent right is not sufficient)
- Assure users have the ROS (NetWare 2.xx) or RF (NetWare 3.xx) rights to the directory where the Niakwa RunTime files are located and to the \LOGIN directory on the volume the Niakwa Gold Key security was installed to. BC

Technical Notes

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Technical Notes are mailed to Resellers of Basic-2C. If you are not a Reseller of Basic-2C, but would like to receive a specific Technical Notes, please contact an authorized Niakwa Reseller, or Niakwa directly.



The Mysteries of ELSE



It's 3 AM. The coffee pot is empty and you've smoked your last cigarette. You're supposed to install the system tomorrow morning (yikes - that's today!), but IT STILL DOESN'T WORK. And you don't know what's wrong. You've tracked down the problem to one routine:

```
0010 IF A=B THEN DO
: C=D
: ENDDO
: ELSE IF X=Y THEN DO
: C=E
: ENDDO
: ELSE DO
: C=F
: ENDDO
```

You've examined this code segment a hundred times. It's so simple it can't possibly be wrong. What you expect it to do is:

1. Set C=D whenever A is equal to B
2. Set C=E whenever A is not equal to B and X is equal to Y
3. Set C=F whenever neither A=B or X=Y is true

What you observe is that C is being set

equal to E whenever A=B!

What's wrong? Well, you've fallen into one of the most subtle pitfalls in the Basic-2x language - using a nested conditional when you should have used a nested DO group. This and other Mysteries of ELSE are the subject of this article.

In its simplest form, ELSE seems very simple and straightforward. ELSE is used to define a statement or DO Group to be executed whenever the preceding IF condition is false. For example:

```
0100 IF condition1 THEN operation1
: ELSE operation2
```

If condition1 is true then only operation1 is executed. If condition1 is false, then only operation2 is executed.

However, ELSE logic contains many subtleties.

Mystery number 1 - the case of the Hanging ELSE

What's wrong with the following code segment?

```
0100 IF A=B THEN PRINT "TRUE"
: REM Test A against B
: ELSE PRINT "FALSE"
```

Okay - this one is pretty simple. One of the rules of ELSE is that it must immediately follow an IF statement or must immediately follow the ENDDO statement of a DO Group associated with an IF statement. If it does not, it is considered to be a "hanging" ELSE and is ignored. Thus in this case, the intervening REM causes the ELSE statement to always be ignored so that FALSE is never printed even if A<>B.

For Basic-2C users, this simple mystery

has an even more mysterious twist. What do you suppose would happen if we used the batch compiler (B2C) to compile this code segment with the KEEPREMS option set to OFF? The resulting code segment would look like:

```
0100 IF A=B THEN PRINT "TRUE"
: ELSE PRINT "FALSE"
```

The intervening REM is now gone so now FALSE should be printed if A<>B, right? Wrong! One of the design goals of the batch compiler is that it should not do anything that would alter execution logic. Since removing the remark (as instructed by the KEEPREMS OFF option) would alter execution logic, the compiler has special logic to detect this condition and will flag the ELSE statement as a "hanging" ELSE even though the intervening REM is removed. Thus the code segment behaves just like it did when the REM was present, though listing the resulting code shows no REM!

Mystery number 2 - yet another "hanging" ELSE

Another subtle way in which a "hanging" ELSE can occur is by incorrect use of the REM \$PC statement in Basic-2C. REM \$PC is used to introduce Basic-2C specific logic to programs which must still operate on a 2200/CS. In Basic-2C, the statement following REM \$PC is considered executable whereas on the 2200/CS it is treated as a remark.

What's wrong with this code segment?

```
0100 IF A=B THEN PRINT "TRUE"
: REM $PC ELSE PRINT "FALSE"
```

The intent of this code segment is that on a 2200/CS, FALSE is never printed, but with Basic-2C FALSE is to be printed whenever A<>B.

What we find is that FALSE is never printed even in Basic-2C! Why? Well, this is another case of the "hanging" ELSE. Remember - ELSE must immediately follow the IF statement (or its associated DO Group) for it to be executed. In this case, the statement immediately following the IF statement is REM \$PC - not ELSE!

A better way to code this would be:

```
0100 IF A=B THEN PRINT "TRUE"
: ELSE REM $PC PRINT "FALSE"
```

Now the ELSE is no longer hanging and the code has the desired effect.

Mystery number 3 - the "hanging" ELSE slips out of the noose!

What's wrong with the following code segment?

```
0100 IF A=B THEN PRINT "TRUE"
0110 ELSE PRINT "FALSE"
```

Yep, that's right - it's a YAHE (Yet Another Hanging Else). Well, sort of. Another rule of ELSE is that it must appear on the same line number as its associated IF statement. Therefore the above code segment will never print FALSE even if A<>B. Well then, why do I say that it is "sort of" a YAHE? That's because there are two cases where this particular form of the hanging ELSE can actually become executable!

Case #1:

```
0100 IF A=B THEN DO
: PRINT "TRUE"
: ENDDO
0110 ELSE PRINT "FALSE"
```

In this case the use of a DO Group alters the rule of same line. Since statements associated with a DO Group themselves may be on separate lines, an ELSE statement that immediately follows

a DO Group associated with an IF statement may itself be on a different line from the original IF statement. The reasoning for this becomes more clear when you look at this example code segment:

```
0100 IF A=B THEN DO
: PRINT "TRUE"
: GOSUB '100(A$)
: IF R<>0 THEN 120
: C=D
0120 X=Y
: ENDDO
: ELSE PRINT "FALSE"
```

No, this example does not show good programming technique. However, it does make the point that requiring ELSE to be on the same line as its associated IF is overly restrictive when DO Groups are used.

Case #2:

Wang Basic-2 revision 3.0 (this is the revision in which DO Groups were introduced) or higher changes the rule of same line even when no DO Groups are used. That is, in Wang Basic-2 revision 3.0 or greater, the ELSE statement in our original example suddenly becomes executable if A<>B. This is somewhat understandable in that the rule of "same line" really should be the same whether or not DO Groups are used.

In Basic-2C we retain the original rule of same line when no DO Group is used. In our view, operation of a program should not be modified by installation of a new language revision if the program itself has not been modified to utilize the new language features.

Mystery number 4 - nested conditionals versus nested DO Groups

It's time to get back to our original problem so you can fix it and still have time to catch a few z's before heading out

to the client site. Here is the problem code again:

```
0010 IF A=B THEN DO
: C=D
: ENDDO
: ELSE IF X=Y THEN DO
: C=E
: ENDDO
: ELSE DO
: C=F
: ENDDO
```

The problem here is actually very subtle and could trip up even the best of programmers. To explain the problem I first need to explain how nested conditionals work without DO. The basic rule that applies is that the operation associated with an ELSE statement is never executed if the associated IF statement is not executed. For example:

```
0010 IF condition1 THEN operation1
: ELSE IF condition2 THEN operation2
: ELSE operation3
```

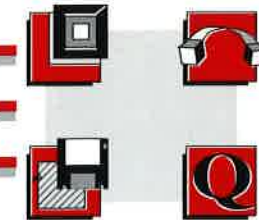
In this example:

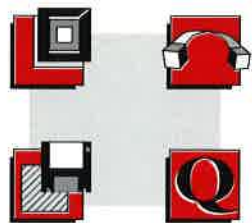
1. Operation1 is executed only if condition1 is true
2. Operation2 is executed only if condition1 is false and condition2 is true.
3. Operation3 is executed only if condition1 and condition2 are both false.

Note that operation 3 is not executed if condition1 is true and condition2 is false. The reason for this is that when condition1 is true, the statement "IF condition2" is NOT executed and therefore its associated "ELSE operation3" is not executed.

This can be made more clear by the following pseudo code which illustrates

(continued on page 18 — see ELSE)





ELSE

(continued from page 17)

the logic performed by the language when the above example is encountered:

```

10 IF condition1 TRUE THEN 30
20 GOTO 50
30 operation1
40 GOTO 100
50 IF condition2 TRUE THEN 70
60 GOTO 90
70 operation2
80 GOTO 100
90 operation3
100 REM END OF SEQUENCE

```

So how does the use of DO Groups affect this logic? The key point here is that when a condition is false, control transfers to the statement that immediately follows the ELSE statement unless that is a DO statement in which case control transfers to the statement following the associated ENDDO statement.

Keeping this in mind, let's take a look at a pseudo code example showing the logic of our original problem code:

```

10 IF condition1 TRUE THEN 30
20 GOTO 50
30 operation1 (C=D)
40 GOTO 80 ← This is the key to the problem
50 IF condition2 TRUE THEN 70
60 GOTO 100
70 DO
80 operation2 (C=E)
90 ENDDO
100 operation3 (C=F)
110 REM END OF SEQUENCE

```

Note that when condition1 is true, C is set to D as we expect. However, control is then transferred to the statement C=E! This is because this is the statement that immediately follows the ELSE statement associated with condition1 and the ELSE

statement does not contain a DO Group - it contains another conditional that itself contains a DO Group!

The solution is now simple - instead of nesting the conditionals, nest the DO Groups. Here is a modified version of our original example that will produce the expected results:

```

0010 IF A=B THEN DO
: C=D
: ENDDO
: ELSE DO
: IF X=Y THEN DO
: C=E
: ENDDO
: ELSE DO
: C=F
: ENDDO
: ENDDO

```

All that is different from the original example is the addition of the highlighted DO/ENDDO pair. However, this makes all the difference. Now whenever A=B, C is set equal to D and then control is transferred to the statement following the last ENDDO.

One last twist - you may have been tempted to modify the program as follows:

```

0010 IF A=B THEN DO
: C=D
: ENDDO
: ELSE DO
: IF X=Y THEN DO
: C=E
: ENDDO
: ENDDO
: ELSE DO
: C=F
: ENDDO

```

Looks pretty reasonable. In fact, this code does correct the original problem. However, with this code, whenever A<>B and X<>Y, C is NOT set equal to F. Why not? That's right, you guessed it - it's a case of YAHE. The ELSE DO

statement after the highlighted ENDDO is now a hanging ELSE because it does not immediately follow the ENDDO associated with the DO Group of the condition IF X=Y.

That's it. The program works. Go home and get some sleep - you earned it! BC

The Back Page

"Investigate The Possibilities" Through Pictures

On February 23 - 26, 1992, Niakwa, in conjunction with Bluebird Systems, held their Investigate the Possibilities Conference.

The conference started with an evening cocktail reception. The evening had the feeling of longtime friends reminiscing. But, all things must end, or at least take a break. When the reception adjourned many groups carried their conversations to a nearby seating area.

Monday morning began with a general session for all who attended the conference. Many topics were addressed during the general session (far too many to get into here). But, there were some highlights. First of all, Hal Tilbury, President of Bluebird Systems, announced that more time will be spent on Research and Development than ever before. This is due, in part, to another strategic event — the signing of a letter of intent between Bluebird and Avnet Computers for Avnet to take over Bluebird's hardware sales.

Although there were many other significant announcements, one that surely needs to be touched on is the relationship forming between Bluebird and IBM. Bluebird has signed with IBM as a two



Figure 2



Figure 3

tier distributor of the AS/400 and RS/6000. Their Industry Remarketer status allows you to take advantage of many IBM business opportunities.

After lunch, Niakwa held five breakout sessions while simultaneously managing a busy exhibit booth. Niakwa breakouts included: Structured Programming, Windows, AIMS, SuperDOS, and Input Screen. Each breakout was relatively well attended, but the Windows breakout was by far the most popular.

The exhibit room, open all afternoon, had a constant parade of interested Resellers. Niakwa's booth had the RS/6000 running Basic-2C.

Tuesday morning saw Niakwa's general session for Basic-2C Resellers. Topics included: a discussion of Niakwa's marketing efforts by Dick Drew, General Manager of Niakwa; development strategies of the language and development tools; and a presentation given by Harry Cohn, Niakwa's Director of Product Development, who discussed platforms - trends and forecasts.

The Niakwa General Session was well received by all. Figure 1 shows (from left to right) Robert Matz of Germany, Charles Hutchins and Rudy Long of USA, and PF Lam of Japan.

Success stories were given throughout Niakwa's General Session. George Nade of Bentleys Computer Services discussed the benefits of Basic-2C Revision 3.20, Figure 2 shows Alan Johnston of Hydratec talking about the work he has done with



Figure 4



Figure 1

NDM and in Figure 3 Wes Lockard addresses the development Dune Country Enterprises (formerly CBSI) has done with Basic-2C for Microsoft Windows.

Near the end of the morning on Tuesday, Niakwa held a tongue-in-cheek "Candidates Debate." Shown in Figure 4 are (from left to right) Emmanuel Rego, of Computer Work Systems for Basic-2C for UNIX, Tom Hess, of Factor, Hess Oil representing Basic-2C for SuperDOS, and Bill Knopf of KDS singing the virtues of Basic-2C for Novell NetWare. At the podium is Gary Rapp, Niakwa's Sales Manager, presiding over the debate. The winner? Everyone wins with Basic-2C (you knew that).

Linus and Lucy by The Vince Guaraldi Trio was this year's music selection. Therefore, the session was closed by explaining how much Snoopy and Niakwa were alike. It was determined that both were dependable, progressive, well liked, and leaders in their communities.

Following a lunch break, Niakwa held breakout sessions and opened their exhibit booth. Tuesday's breakouts included: Windows, FourD, IQ, an Input Screen.

The evening entertainment was a murder mystery dinner theater set in the early 1900's. With Alan and Lillian Johnston taking investigator awards for their sleuthing abilities.

See you next year!



Profile

James Enterprises, Inc.

Introducing Robert James

James Enterprises, Inc., is located in Ames, Iowa, (the home of Iowa State University) just 30 miles North of the state capital in Des Moines. Out on the prairie, the wind can be vicious blowing across the open fields in the winter. The summers can be hot and sticky. What is a person involved in computers and business consulting doing here?

Getting Started

Back in 1972 Bob decided to computerize the operations of the five truck stops he owned and operated. After a little study, he decided that Wang offered the best alternative for him. The Wang sales representative put him in touch with someone who could do the programming on a contract basis and things got started.

As it turned out, the original programmers couldn't seem to get things working the way Bob thought they should. So he did the logical thing that someone with an independent streak and accustomed to being in business on his own does - he picked up a programming manual and taught himself how to program. He says he is still working on that original application improving and refining it. In fact during the interview he reported that users of his point of sale application report a 50% increase in the number of transactions they can handle during a fixed time period. The result is faster service for store customers and repeat business for store owners.

Hooking Up With Wang

By 1974 the Wang sales force from Des Moines was using his operation as a demonstration site. Then they approached Bob to become a Wang Vendor. Initially, Bob looked on the computer business as a hobby, devoting only about 20% of his time to it and the rest to the truck stop business. He enjoyed programming. To quote him, "We all think we are artists."

As time progressed, he gained additional business in the truck stop and convenience store markets. At one time he won contracts from the State of Iowa with an application for the Iowa County Roads Department and from the State of Nebraska from the Nebraska Banking Commission. How, you may ask, did Bob get into such diverse situations? Answer: Through referrals. Someone who knew about his work talked to someone else.



Bob James

Application Crossroad

When the rumors began in the early 80s that Wang was considering abandoning the 2200 system, Bob was faced with the unattractive alternatives of either converting all of his applications to another language or getting out of the computer business. To quote Bob, "What Niakwa did for me by creating Basic-2C was a real life-saver. Now with the continuing stream of improvements to the language and Niakwa's vision for the future of the Development Environment, they are continuing to support me the way

I want to be supported. The high quality of the products and support I've gotten over the years means I have a partner I can count on."

These days Bob spends 80% of his time on the computer and consulting business. Since the truck stop industry is dominated by large company operations, James Enterprises is down to two truck stops and three restaurants. In fact, he has considered selling the truck stop and restaurant operations. The former "hobby" has become a profitable business. He still doesn't have a salesman. All of his business comes through referrals.

Opportunity Knocks

Recently another avenue of opportunity has opened to Bob. His own CPA came to him to ask him to help straighten out the system the CPA had purchased. Bob performed and began picking up referrals from the CPA. Now James Enterprises acts as the computer consulting arm of this independent CPA firm. For Bob the business seems to seek him. In fact, Bob turns down business. He looks for a fit between the potential client and the expertise his group has to offer. If the fit isn't there, he doesn't pursue the business.

Service Means Success

What accounts for this success? According to Bob, it's the emphasis on service. As an example, he recently got a call from a client in Chicago who's system was acting up. In a matter of six and a half hours, he was sitting in the client's office solving the problem. That six and a half hours is the drive time from Ames, Iowa to the Chicago area.

Summing It All Up

Bob made a wonderful discovery. He found an occupation that for him is noble, fun, and profitable. BC