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WebSphere Development Studio Client for iSeries

VisualAge RPG Introduction

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www.ibm.com/software/awdtools/iSeries

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<news://news.software.ibm.com/ibm.software.varpg>

VARPG sessions at COMMON

→ VARPG, Hands on Labs, try it out:

Thursday *all day*, part of the WDS*c* open lab 51LC – 54LC

- Intro to VARPG
- GUI subfile programming with VARPG (highly recommended)
- Advanced topics
 - ODBC programming with VARPG

→ Get handouts for Roy Goldstein presentation:

VisualAge RPG what is it all about 21MO 430086

Agenda

- Overview
- The GUI designer
- The VARPG language
- Features
- Live demo of VARPG

WebSphere Development Studio for iSeries

- Eclipse based

- **Rational Web Developer (RWD)**

- For Web, Java, XML,

- with iSeries extensions

- Remote System Explorer (system objects, RPG, COBOL)

- Webtools (web applications, web services)

- WebFacing tool

- Browser interface for existing green screens

- Classic tools

- **CODE**

- For RPG, COBOL, CL, C, C++, DDS

- **VisualAge RPG**

- For RPG logic with rich Graphical User Interface

Before and After

The screenshot displays the WebSphere Development Studio Client for iSeries interface. On the left, a terminal window titled "Session A - [24 x 80]" shows a command prompt with fields for Identification, Password, Company, and Division. The status bar indicates "Connected to remote server/host TORAS48F using port 23".

On the right, a simulation report window is open, titled "SIMULAZIONE DEL 05/03". It contains several tabs: PARAMETRI, DATI LANCIO, ORDINI SIMULATI, IMPEGNI MATERIALI, IMPEGNI TEMPO, CARICO C.d.L., and RISIMULAZIONE/CONFERMA. The "CARICO C.d.L." tab is active, showing a table of simulation parameters and a bar chart of "REQUIREMENTI C.d.L. SELLINGMATE".

Carico d Lancio	Descrizione	Potenz. Giorni Die	Nr. DRE Totale Periodi	Nr. DRE Prima	Sell. 10/2001 gg.05	Sell. 11/2001 gg.05	Sell. 12/2001 gg.05	Sell. 13/2001 gg.05	Sell. 14/2001 gg.05	Sell. 15/2001 gg.05	Sell. 16/2001 gg.05	Sell. 17/2001 gg.05	
402	Procedura	16	229.24			2.24	2.25	23.15	22.00	42.13	13.84		
502	Verifica/validazione	32	218.62				3.33	16.74	38.26	56.43			
601	Assemblaggio	40	999.96		3.08	207.77	69.02	176.45	143.50	87.74	89.23		
602	Confezionamento	16	599.81		2.50	225.56	33.32	24.99	43.32	43.66			
701	Collaudo	16	24.49				7.90	1.02	3.91	2.94	2.92		
804	Assemblaggio	48	34.79										
TOTALE						5.91	460.31	656.01	541.62	601.99	526.87	317.92	2.94

The bar chart below the table shows the distribution of requirements across various selling dates, with a significant peak in 10/2001.

VisualAge RPG Overview

You know RPG ? Yes you can do it

Build client/server applications with RPG!

GUI builder to design multimedia interfaces

Easily create GUI screens

Drag and drop new technologies such as image, audio

Logic behind GUI is RPG

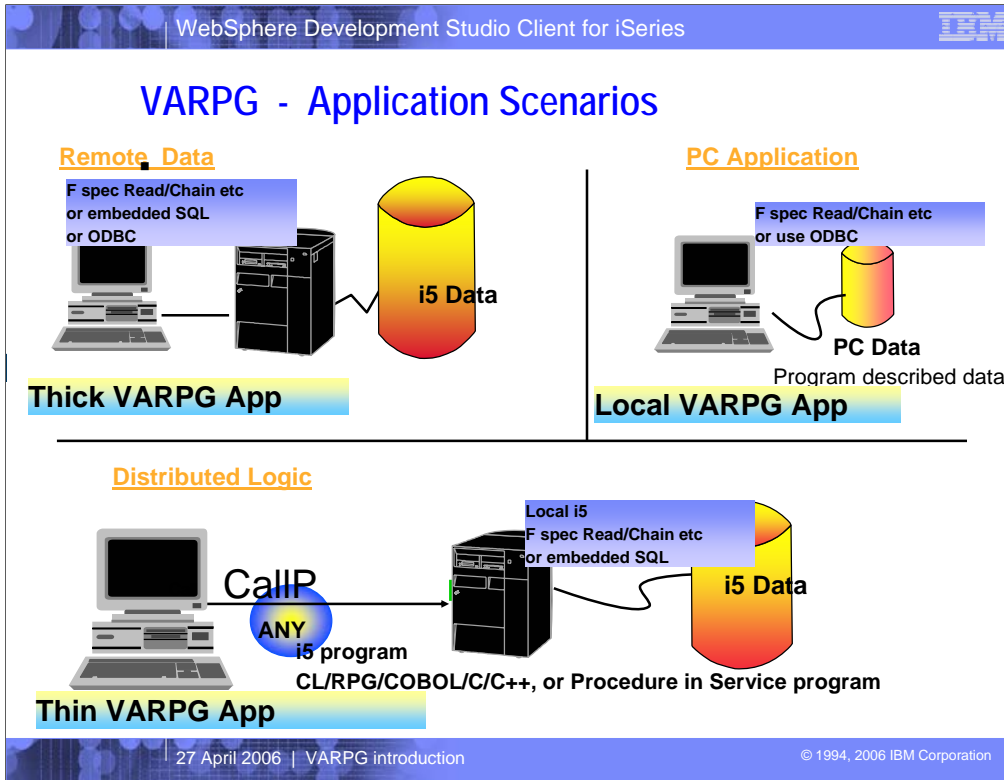
Familiar language

Familiar database

Integration with CODE editor

VARPG project view in Eclipse workbench

No runtime license required for VARPG applications!



This is intended to compare the various application environments supported by VARPG.

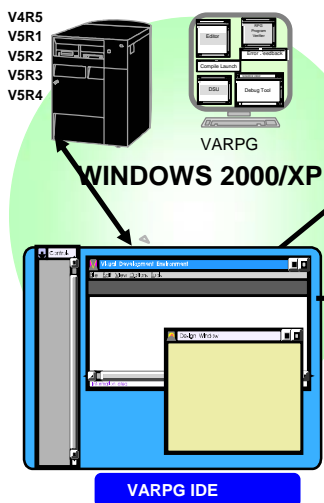
The primary target of the product is in the categories of Remote data and Distributed logic.

PC applications can be built today, but will be more directly supported in the V3R6 release when local file support (flat files and embedded SQL) is added to the product.

VARPG does not support the development of NPT (i.e. 5250) applications.

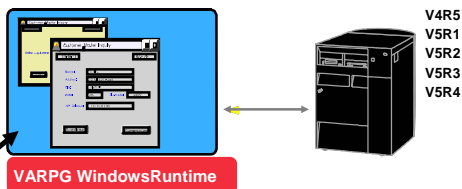
VARPG Development and Run Time

Development Environment



Run Time Environment

Windows 2000/XP

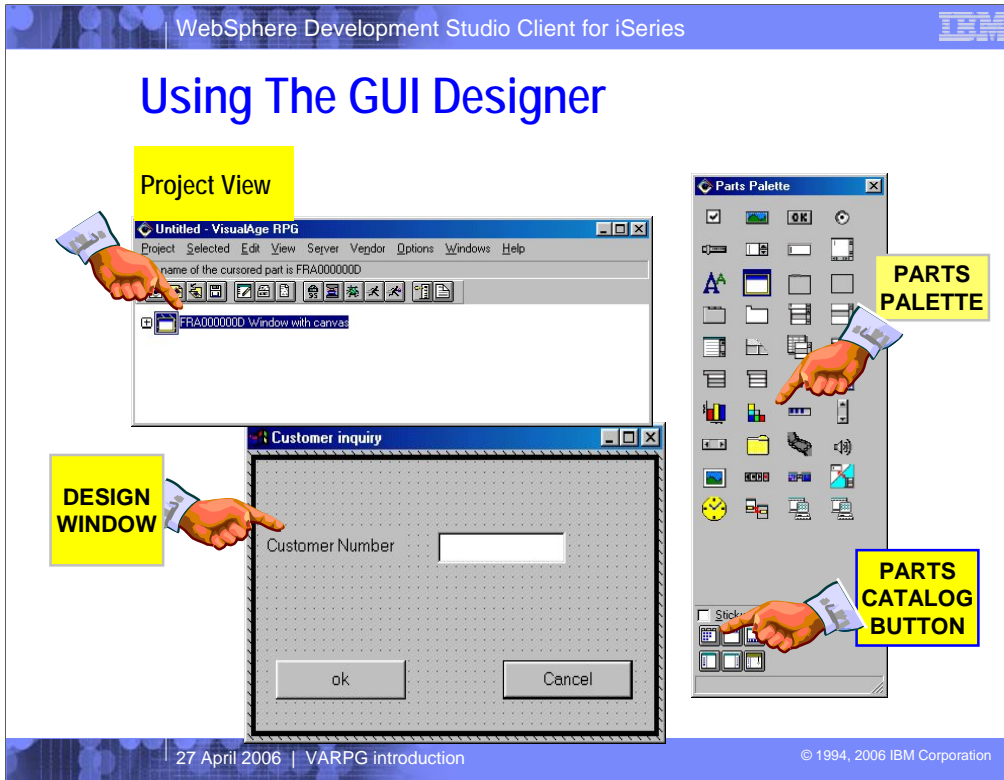


JAVA virtual machine



Agenda

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This chart depicts VARPG GUI builder.

The Parts Palette on the left side contains basic graphical parts that can be dropped onto the development surface to create windows. The palette is customizable and you can create your own customized parts and place them on the palette, for use in other applications.

In this example, the window that is currently open for editing consists of the window part itself, to which has been added an entry field, a text field and two buttons. By double clicking on a part, the developer can define or modify its attributes (see the next page for an example of this). The attributes of a part may also be modified programmatically with the RPG code that defines the application logic. We'll see examples of this later in the presentation.

RPG logic may be associated with events that occur to the parts on the GUI screen, such as pressing a button or passing a mouse over a part.

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Parts and Events

Part:
Pushbutton

Attributes:

- BackColor
- Border
- FontSize
-

Events:

- Press
- Create
- Destroy
- MouseMove
-

Part:
Entry Field

Attributes:

- BackColor
- Text
- DataType
-

Events:

- Change
- Drop
- MouseMove
- DbClick
-

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The attributes of a 5250 screen "part" are limited to things such as color, blink/steady, input capability, etc. VARPG parts have a far greater number of attributes.

The initial settings of these attributes are determined by the entries made in the parts notebook, see the next foil for an example of a notebook page. They can also be controlled programmatically. We'll see an example of this later.

Parts are also associated with "Events". For example a button may be PUSHed, an Entry field may be CHANGED, a Subfile may have a record SELECTed, and so on. These events are associated with action subroutines which contain the logic required to perform the requested task. Again we'll be taking a look at an example of this later in the presentation.

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Part Properties (attributes) Notebook

- **Part Name**
 - ▶ Used as "Field" name
- **Label**
 - ▶ Text appears on part
- **Tooltip**
 - ▶ Help info for end user
- **Also specifies :**
 - ▶ Size
 - ▶ Style
 - ▶ Font
 - ▶ Colors
 - ▶ Description

Initial state attributes

- Visible
- Enabled

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This is an example of a notebook page. This first page names the part and defines any initial text that is to appear on/in the part. In this case, a button, it also determines if the part is to be visible when it's window is first shown and whether the part is enabled (i.e. can be pushed).

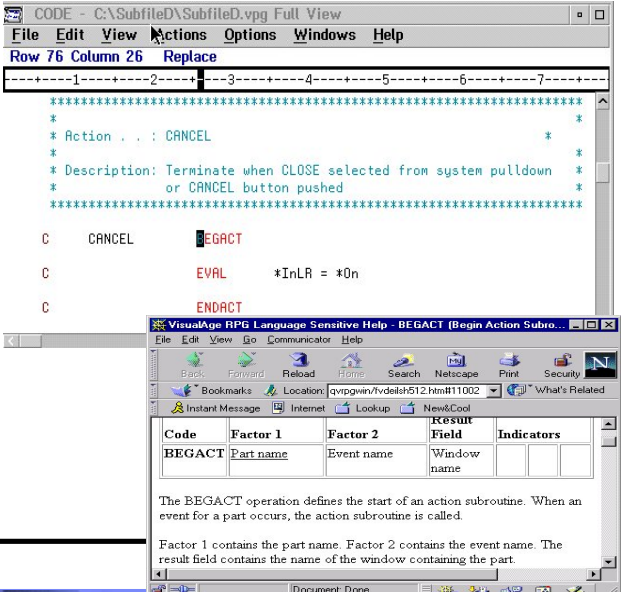
There's even room for documentation!

Other pages in the notebook define the part's color (foreground and background), it's font, any help text associated with the part, etc. etc. The notebook also controls optional features of a part, for example whether an image part is to include a magnification panel.

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The CODE Editor

- **Programmable**
 - ▶ Extensible
- **Color coding**
- **Context Sensitive**
 - ▶ Prompting
 - ▶ Help
 - It's the manual!
- **Shared with CODE**
- **SEU profile**



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The LPEX editor is fully programmable. If you don't like the defaults, changing them is a simple matter. It is also fully extensible through macros or add-in components.

Third party add-ons have started to appear (a DDS parser for one) and more are expected. The editor is also supported through the user run CODE400-L listserver on the Internet.

The same editor technology is used in VARPG, VisualAge C++, CODE/400, and the new Visual COBOL product.

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WebSphere Development Studio Client for iSeries IBM

PROCEDURAL MODEL

ENTER or Command Key

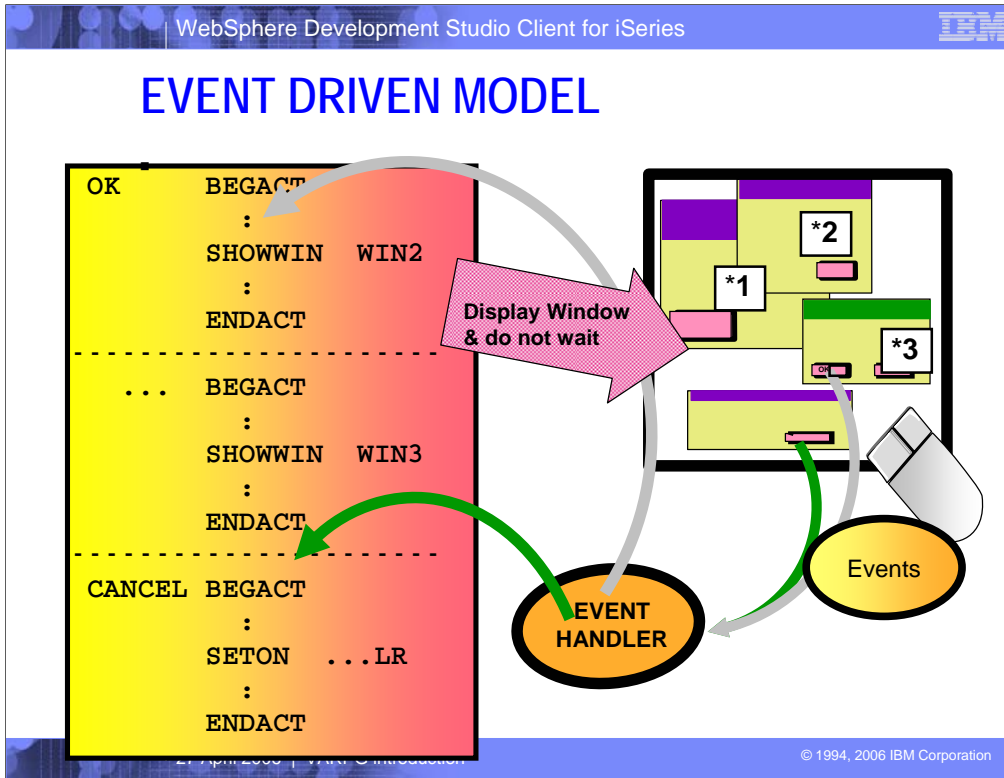
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It's important to understand that the way we program for a GUI application is different than the method we typically use when programming traditional "Green screen" 5250 style applications.

The 5250 style applications use what we'll refer to here as the "Procedural" model. That is to say that we prepare a screen and write it to the display with (in RPG) an EXFMT. Our program then effectively "goes to sleep" and waits for some form of input from the user. This may be the pressing of an F key, Roll Up/Down, Enter, etc. etc.

The significant thing to note is that once the program has been "awakened", it's the programmer's responsibility to determine just what happened. This often takes the form of a series of IF statements which trigger the appropriate logic to match the user's request.

GUI applications tend to use the "Event Driven" model. The VARPG implementation of this is described on the next foil.



In the "Event Driven" model, multiple "screens" (i.e. windows) can be displayed at any given time and the user is free to interact with any of them.

This would very quickly become completely unmanageable if we had to use the procedural approach. Instead we associate logic with the actual fields, buttons, etc. that the user interacts with.

In the example shown, we'll assume that windows *1 and *2 are displayed when the application starts up. The user is free to interact with either of them. If the user clicks on a button in one of the windows, the "event" is monitored by the Event Handler. This identifies the event and routes it to the appropriate action routine.

In our example, the user first clicks on an "OK?" button and the first action subroutine (OK BEGACT) is triggered. Among other things this results in the display of another window (SHOWWIN WIN3).

Had the user clicked on the "Cancel" button, the Event Handler would have activated the third action routine (CANCEL BEGACT).

WebSphere Development Studio Client for iSeries

Adding RPG Code

Global Area

FCUSTMSTL IF E K Disk REMOTE

```

C      CANCEL      BEGACT  PRESS      CUSFMT
*Set on LR to end the program
C      EVAL      *INLR = *ON
C      ENDACT

```

```

C      OK      BEGACT  Press      CUSFMT
* Locate customer in file
C      CUST      CHAIN(E)  CUSREC
C      IF      %found and not %error
C      :
C      ELSE
* Customer was found, display update panel.
C      SHOWWIN  'CUSFLDS'
C      END
C      ENDACT

```

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This chart illustrates an example of the RPG logic that might be applied to a simple GUI screen.

The logic associated with the Press event of the OK button will evoke the action subroutine (note the BEGACT - BEGIn ACTION - operation in the code.) In this example, the data (CUST) entered in the entry field is used to CHAIN to the Customer master file on the AS/400. If the customer is found, a new window is displayed with the customer information. If the customer is not found then we could display a warning box similar to the one shown in a later example.

When the CANCEL button is pressed, the application is ended (by setting on LR).

Note also that there is a global area where File specs and data definition specs are placed.

The VARPG language is based on RPG IV, so if parts of this code do not look familiar, it may be because you are not familiar with the new features of RPG IV, such as free form expressions.

There are also language extensions specific to VARPG, such as the SHOWWIN operation code.

Working with GUI attributes

Free form or EVAL operation code

Use qualified names

```
AttrValue = Window.Part.Attribute
```

```
Window.Part.Attribute = AttrValue
```

Get text attribute from part custn into variable CUSTNO

```
C      Eval      custno = window.custn.text
```

Set text attribute of part custn to value in variable CUSTNO

```
C      Eval      window.custn.text = custno
```

Free form sample:

```
Custno = Win1.Ent1.Text
```

```
Win1.Ent1.BackColor = *Red
```

E
V
A
L

No indicator usage for attributes

Dynamic Attribute Operations

Built-ins

%GETATR & %SETATR

```
AttrValue = %GETATR(Window:Part:Attribute)
```

```
%SETATR(Window:Part:Attribute) = AttrValue
```

Get text attribute from part (name contained in variable partname) into variable CUSTNO

```
Eval      custno = %GETATR('w1':partname:'text')
```

Set text attribute of part (name contained in variable partname) to value in variable CUSTNO

```
Eval      %SETATR('w1':partname:'text' = custno
```

Attribute Operations (old style)

Fixed form

GETATR & SETATR

Only apply to the default (active) window

Factor 1	Op-code	Factor2	Result
Part	GETATR	Attribute	AttrValue
Part	SETATR	AttrValue	Attribute

WebSphere Development Studio Client for iSeries

Manipulating Part Attributes

Entry field:
CUSTOMERNO

Button:
CHECKIT

```

C CUSTOMERNO  BEGACT  GOTFOCUS  WIN1
C              EVAL    WIN1.CUSTOMERNO.BACKCOLOR = *YELLOW
C              ENDACT

C CHECKIT     BEGACT  PRESS      WIN1
C              EVAL    CustNo = WIN1.CUSTOMERNO.TEXT
C              EXSR    ReadCust
C              IF      RecStatus = Missing
C              DSNLY  ErrBox      ErrReply
C              ELSE
C              IF      CredStatus = Good
C              EVAL   WIN1.CHECKIT.BACKCOLOR = *BLUE
C              ELSE
C              EVAL   WIN1.CHECKIT.BACKCOLOR = *RED
C              .....
  
```

When the Customer Number entry field (the CUSTOMERNO part) gets focus, the background color of the button CHECKIT is changed to pale gray. The GOTFOCUS event can be triggered in a number of ways, for example, by clicking with the mouse on the part or by using the Tab key.

When the CHECKIT button is PRESSED the logic checks the credit status for the entered Customer Number. If the customer is determined to be over the limit, the color of the CHECKIT button is changed to Red. If the customer's credit rating is good, the color of the button is changed to Blue.

In the example program, the CHECKIT button is also set as the default action for the key. This allows the user to perform the credit check by simply entering the Customer Number and pressing .

New RPG Operation Codes

✓ BEGACT	begins an Action subroutine
✓ ENDACT	ends an Action subroutine
SHOWWIN	creates a window
CLSWIN	destroys a window
⊘ GETATR	get part attribute value
⊘ SETATR	set part attribute value
READS	read subfile selected record
START	invoke another component
STOP	stop a component
*TERMSR	terminate subroutine

We will now introduce the VARPG operation codes that don't exist in RPGIV.

Since we already discussed BEGACT, ENDACT, GETATR, SETATR we will not get back to these new operation codes.

TERMSR is not an operation code, but we will handle it in this section as well.

Changed RPG Operation Codes

CALLP	call an iSeries program
CALLP	call workstation program/procedure
CLEAR	clears entry fields and subfiles
DSPLY	displays a message box
READ	reads entry field values from a window
RESET	resets window values
TIME	return system date/time
WRITE	sets entry field/static text values
*INZSR	initialize subroutine


Several of the normal RPGIV operation code had to be modified to adapt to the new runtime environment.

We will go through all the changes in detail in the following foils

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DSPLY Operation Code

- Displays Dialogue box
 - Three styles
 - *INFO *WARN & *HALT
 - Use literal, field, or Message
 - Input responses
 - *OK *Cancel *Retry *Abort *Ignore
 - *Enter *YesButton *NoButton



```

D ErrMsg          C      .....      'Invalid Customer Number'
D ErrBox          M      .....      STYLE(*HALT)
D                                     Button(*ok:*cancel)
C ErrMsg          DSPLY  ErrBox      Reply
C                                     If      Reply=*ok

```

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The DSPLY Op-code has been enhanced to allow VARPG programs to put up message boxes.

A value is returned in the Reply field which indicates the specific button that was pressed to clear the message. This value can be tested against the figurative constants listed (e.g. *OK, *Cancel, etc.)

RPGIV Features Not Supported

- **RPG Cycle**
- **WORKSTN files**
- **Host Printer Files**
- **Operation Codes:**

▶ ACQ	▶ MHHZO
▶ REL	▶ MHLZO
▶ FREE	▶ MLHZO
▶ NEXT	▶ FORCE
▶ DUMP	▶ SHTDWN
▶ DEBUG	

Some functions available in RPGIV have been totally dropped from VARPG

Everything related to the RPG cycle has been dropped with the exception of the LastRecord (LR) indicator.

WORKSTN files are not available in VARPG, so this device has been dropped from the F specs.

On the workstation we don't have printer files. If local printing is needed it has to be done with internal (program) described O specs, or by invoking a workstation report writer via DLL function calls or the ActiveX part.

If you want to use a PrinterFile we suggest to CALL a HostProgram that can then work with external described PrinterFiles

The operation codes dropped are not needed in the GUI event driven environment and haven't been very much used in the Green screen RPGIV environment

Program Source Structure

All logic written in subroutines or procedures

- Action Subroutines
- User Subroutines
- Sub Procedures
- *INZSR
- *TERMSR
- *PSSR
- *ENTRY
- KLISTs

✓ One source file per application

Definition Specs {

```

H
*
F
* } Define files
D
D
*
I
I } Local input files
I } Special files
*
C
C
*
O } Printer files
O } Local output files
*
P
D
C
C
P
** -Array data

```

▶ RPG IV V5R3 Syntax

- ▶ Monitor support
- ▶ Free form
- ▶ Qualified data structures
- ▶ etc

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WebSphere Development Studio Client for iSeries

What about Subfiles?

No subfile control record

Additional op codes
Clear
Reset

SUBFILE is a GUI object

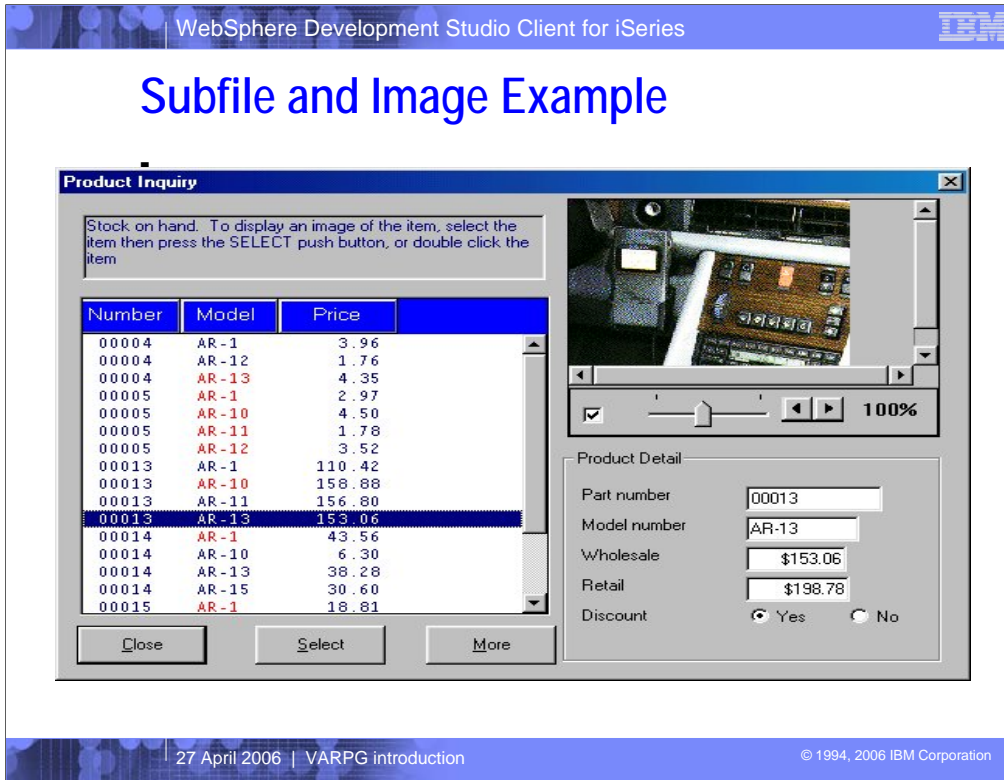
Just drag and drop database reference fields or define your own field list
All existing Subfile op-codes are supported
READC, DELETE, CHAIN, UPDATE
Plus new **READS** (Read Selected)

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Subfiles are a powerful and frequently used facility in AS/400 programming. VARPG provides a GUI equivalent that supports all of the existing subfile Op-codes, and adds a new READS (Read Selected) operation to further simplify subfile use.

If you take advantage of VRPG's import capability to convert AS/400 screen definitions to their GUI equivalent, subfiles will be automatically converted to their VARPG equivalent.

The normal performance considerations for subfile programming (i.e. fill a page at a time and get the next page when the user rolls up) are probably even more important in C/S programming than for "green screen" so the techniques you've developed will not go to waste.



This and the following page are taken directly from the VARPG code used in the demo program. The subfile part on the right hand side is the one shown in the previous foil.

Below it we have the "Next", "OK" and "Cancel" buttons. The logic "behind" the "Next" button is shown on the next page. The "OK" is linked to the same code as the SELECT event on the subfile (i.e. it causes the selected subfile image to be displayed). This code is also shown on the next page.

The image part on the right side uses all of the VARPG image capabilities (i.e. it has scroll bars and a magnification panel). As you'll see, very little programming is needed to display the image)

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Subfile and Image Example (contd.)

```

* Action . . . . : NEXT
* Description . . : Get another page of records if any remain
*                  Disable 'Next' button once all records loaded

C   NEXT          BEGACT   PRESS
C                   IF      Loaded < MaxRecs
C                   EVAL    Count = 0
C                   DOW     Count < PageMax AND Loaded < MaxRecs
C                   EVAL    Count = Count + 1
C                   EXSR    LoadRec
C                   ENDDO
C                   ENDIF
C                   IF      Loaded = MaxRecs
C                   EVAL    winl.next.enabled = 0
C                   ENDIF
C                   ENDACT

* Action . . . : SELECT
* Description: When subfile record selected, set the image file
*              name from the selected record's data
C   SUBFILE1     BEGACT   SELECT
C                   reads   SubFile1
C                   EVAL    ImageName = %TrimR(ProdImage) + '.BMP'
C                   EVAL    SUBFDEMO.IMAGE.FileName = ImageName
C                   ENDACT

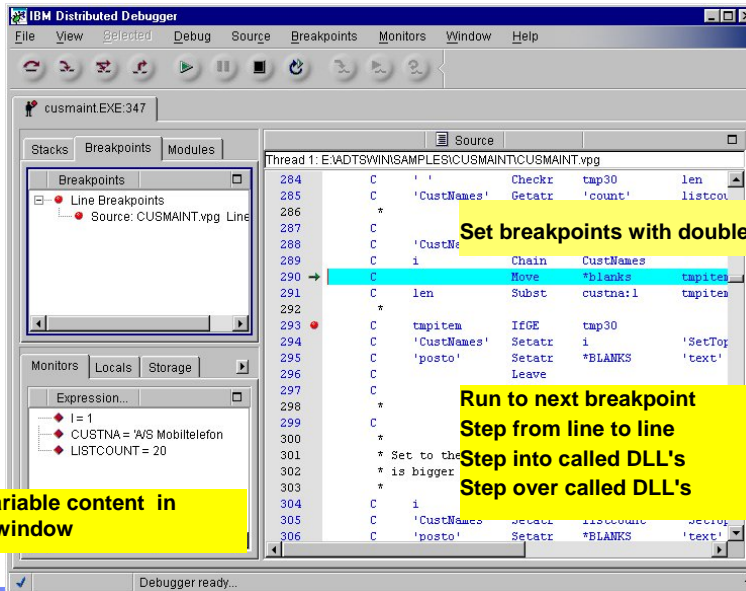
```

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The first routine (NEXT - PRESS) is simply checking to see if there are further records to display and adding them to the subfile if any exist. The only VARPG specific code here is the SETATR statement at the end of the routine. This causes the "Next" button to be disabled once all records have been loaded.

The second routine (SUBFILE1 - SELECT) first reads the selected subfile record (READS) then does an EVAL using the hidden field in the subfile record to form the full file name for the image that we want to display. Once this is done, it only remains to use SETATR (in this case the free-form %SetAtr is used) to set the file name into the "FileName" attribute of the image part. Now what could be simpler!

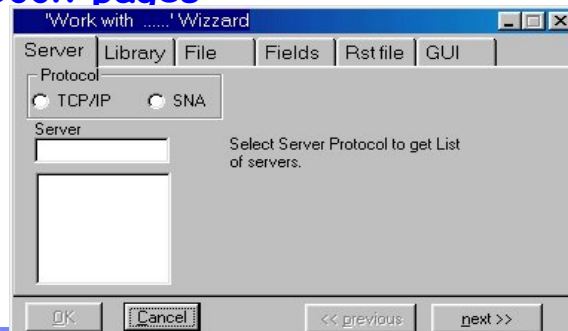
Built in source level debugger



Wide variety of built in parts

▪ Try different parts, like:

- ▶ Radio buttons
- ▶ Check boxes
- ▶ Container
- ▶ Notebook/Notebook pages
- ▶ Calendar
- ▶ Pop-Up Menus
- ▶ Multi line edit



Many more features with new releases

- **ODBC support**
- **Many GUI subfile features**
 - **Sorting of columns**
 - **Changing location of columns at runtime**
- **Additional Parts that come in handy**
 - **Graph part**
 - **Progress bar,**
 - **Animation part**
 - **ActiveX part**
- **Set Server and communications API's**
- **Synchronization with RPGIV language definition**
- **JAVA source generation now at 1.4 level**
- **Each new release contains many features user requested**



Linemaster (USA) MAPICS frontend

Product Structure
☐ Include Inactive/Deleted Components

Parent Item # Revision ACTIVE

Description

Act	Bal	Item #	Description	Qty Per	F/O	O
A		LSC-1027-8	Carton 2 15/16 x 1 1/16 x 3 5/8	1.0000	N	N
A		LSC-1027-9	Carton W/ Logo 18 3/4 x 11 1/4 x 6	.0100	N	N
D		LSC-1056	***** Deleted	.0000	*	*
A	11	LSC-1075	Warning Label English/French/Spar	1.0000	N	N
A		LSC-206-56	Carton Label Treadlite II T-91-S CE	.0200	N	N
D		LSC-227-11	***** Deleted	.0000	*	*
D		LSC-227-4	***** Deleted	.0000	*	*
A		LSC-375-16	Polybag [5 X 7] with warning	1.0000	N	N
A	1	LSC-567-20	Yellow Pre-inked Stamp	.0010	N	N
A	16	LSC-793-26	Petrolon Grease Lubricant	.0010	N	N
A	9	LSC-947	Warning label English	1.0000	N	N
A	19	4-475-P3	#8-32 Combo Head Carbon Steel .21	2.0000	N	N
A	15	514-N3	Interior	1.0000	N	N
D		515-B37	***** Deleted	.0000	*	*
A	10	515-CA	Cover Steel	1.0000	N	N

.0000 N N

Effective Date From: To: Update Delete

Capricorn (USA) Apparel industry package

Assortment Plan Maintenance - Visual Planning System - VPS0204

File Add Styles Functions Selection Navigation Total Column Desc Column Reports Export

SYS16852 JAMESON SHORT
 1 M JIARD LINE ODM
 R4 - FASHION 2 TAIL FASHION
 FASHION 2 SBT SHORT BOTTOM
 9- 8- 18- 32- 3 8
 1- 1- 2- 2-

Season-Div **AY 2002 MARKET - RALPH LAUREN**
 Plan - Status **59 - Allow Edit**
 Account **B3382 - BLOOMINGDALES DIVISION**
 Sub Div **PS** Prod Class
 Distro **RP**

Total				
45000	10000	20000	34000	121000
18826	7530	3765	64005	94125
976	390	195	3315	4675
Cluster -->				
Profile -->				
Region -->				
# of Stores -->				
6	2	1	17	26

Asst Plan Goal --> 45000 10000 20000 34000 121000
 Asst Plan Actual --> 18826 7530 3765 64005 94125
 Confirmed --> 976 390 195 3315 4675
 Cluster -->
 Profile -->
 Region -->
 # of Stores -->

Con% **5%** Markup% **57%**
 Treat Total Order **D**

Start Ship Prod Type Prod Cls Classif Sty Grp
 *ALL *ALL *ALL *ALL *ALL

C / U	Style	Col	Desc	SS	L R M	WH\$	MSR\$							Total Units	LTS
U	SY416235	011	BLACK/C	09	M	87.75	195.00								
U	SY416607	416	NAVY PL	09	M	78.75	175.00								
U	SY416839	600	RED	09	M	101.25	225.00								
U	SY16850	154	WARM W	10	M	26.78	59.50								
U	SY16850	410	FRENCH	10	M	26.78	59.50								
U	SY16852	110	WHITE	10	M	17.78	39.50								
U	SY16852	225	ROM BL	10	M	17.78	39.50								
U	SY16852	410	FRENCH	10	M	17.78	39.50								
U	SY16853	110	WHITE	10	M	20.25	45.00								
U	SY16853	410	FRENCH	10	M	20.25	45.00								
U	SY16856	410	FRENCH	10	M	15.75	35.00								
U	SY16857	154	WARM W	10	M	12.38	27.50								
U	SY16857	410	FRENCH	10	M	12.38	27.50								
U	SY16857	458	ANTIQU	10	M	12.38	27.50								
U	SY16858	154	WARM W	10	M	26.78	59.50								

Legend:
■ = Distro
■ = Style-Level LTS
■ = Fabric

Cost Dollars / Store -->				
1633	1633	1633	1633	40825
Retail Dollars / Store -->				
3765	3765	3765	3765	94125
Units / Store -->				
96	96	96	96	2400
Store Retail % to Total -->				
20	50	100	6	100

Versatile (Australia) inventory sample

AS-MIKA (Germany) Spoolfile sample

ZÜRISTIGE Spoolkatalogen auf der iSeries ablegen (c) Copyright AS-MIKA GMBH

Datei: Serververbindung Info

Benutzer: WEISS Datum: WEISS740
 Outq: *ALL Formularart: STORASD7A
 Bibliothek: *LIBL Name, *LIBL Status: Benutzer
 Benutzerdaten: *ALL Name, *ALL Ablageortner im IFS Filesystem WEISS
 *Kein Ordner definiert

Listen	Datei	Benutzer	Outq	Benutzerdaten	Status	Seiten	Datum
QPRINT/QQPL	QPSUPRTF	WEISS	QPRINT		RDY	1	2004
QE2JOBLOG/QUSPBSYS	QPSUPRTF	WEISS	QPRINT		RDY	57	2004
	QPSUPRTF	WEISS	QPRINT		RDY	2	2004
	QPSUPRTF	WEISS	QPRINT		RDY	2	2004
	QPSUPRTF	WEISS	QPRINT		RDY	2	2004
	QPSUPRTF	WEISS	QPRINT		RDY	2	2004
	QPSUPRTF	WEISS	QPRINT		RDY	1	2004
	QPSUPRTF	WEISS	QPRINT		RDY	50	2004
	QPSUPRTF	WEISS	QPRINT		RDY	2	2004
	QPSUPRTF	WEISS	QPRINT		RDY	1	2004
	QPSUPRTF	WEISS	QPRINT		RDY	1	2004
	QPSUPRTF	WEISS	QPRINT		RDY	1	2004
	QPSUPRTF	WEISS	QPRINT		RDY	1	2004
	QPSUPRTF	WEISS	QPRINT		RDY	1	2004
	QPSUPRTF	WEISS	QPRINT		RDY	57	2004
	QPSUPRTF	WEISS	QPRINT		RDY	2	2004
	QPSUPRTF	WEISS	QPRINT		RDY	1	2004
	QPSUPRTF	WEISS	QPRINT		RDY	1	2004
	QPSUPRTF	WEISS	QPRINT		RDY	1	2004
	QPSUPRTF	WEISS	QPRINT		RDY	1	2004
	QPSUPRTF	WEISS	QPRINT		RDY	1	2004

Verlassen Aktualisieren Alle markieren Keine Markierung PDF erstellen ZIP Pack erstellen Ablageordner Liste anzeigen

Spoolinformationen werden geladen Anzahl Einträge : 5226

```

5005 * This program has to be created as a Service program               09/29/02
5006 * CSTRPGGRP first then CSTRPDPGR                                   09/29/02
5007 * Used in MPT hands on LAB                                        09/29/02
5008 * Created by Claus Weiss                                         09/29/02
5009 * * F spec for file CUSTOML3 keyed by customer number           09/29/02
5010 *                                                                   09/29/02
5011 *                                                                   09/29/02
5012 * .....
5013 * .....
5014 *MONA23          K disk
5015 * *Custom13 if *
5016 * need structures for all dep recordformats here
5017 * need to add record format name to structure
5018 d STRUCF01      e ds          extname(custom13:custom01)
5019 d STRUCF02      e ds          extname(custom13:custom01)
5020 d STRUCF03      e ds          extname(custom13:custom01)
5021 d STRUCF04      e ds          extname(custom13:custom01)
5022 *
5023 * Prototype for procedure getrecord
5024 * if you don't specify extpdr with lowercase name you need to specify
5025 * GETRECNDP to uppercase in Top level on Wizard for extpdr name
5026

```

Spooldatei : QPSUPRTF/QPDEV000R/WEISS/225476/000006 wird geladen Anzahl Daten : 104

San Marco (Italy) ERP sample

POOL ITALIA - Simulazione M.P.S. - M.R.P.

Numero Lancio: 00010 | SIMULAZIONE DEL 05/03
 Data Inizio Pianif.: 5/03/01 | Proprietà: 0 | Magazzino: 100

PARAMETRI | DATI LANCIO | ORDINI SIMULATI | IMPEGNI MATERIALI | IMPEGNI TEMPO | CARICO C.d.L. | RISIMULAZIONE/CONFERMA

Solo C.d.L. Simulazione | Carico 100% | -75% | -50% | -25% | 0 | +25% | +50% | +75% | 100% | 1 Anno | Ricalcolo Carico C.d.L. Simulazione

Centro di Lavoro	Descrizione	Potenz. Giorni Ore	Um	Nr. ORE Totale Periodi	Nr. ORE Prima	Selt. 10/2001 gg.05	Selt. 11/2001 gg.05	Selt. 12/2001 gg.05	Selt. 13/2001 gg.05	Selt. 14/2001 gg.05	Selt. 15/2001 gg.05	Selt. 16/2001 gg.05	Selt. 17/2001 gg.05
402	Piegatura	16		229,29			2,26	2,26	39,15	32,00	42,19	19,90	
502	Verniciatura caldo	32		219,66					3,33	30,75	98,26	56,49	
601	Assemblaggio	40		999,96			3,09	287,77	69,02	178,46	143,60	87,74	69,73
602	Confezionamento	16		596,61		2,50		225,68	53,32	24,58	43,32	43,68	
701	Collaudo	16		32,63				7,30	1,02	1,36		2,64	2,95
804	Assemblaggio	48		34,78									
TOTALE					3.578,15		5,91	460,11	696,01	641,63	601,99	606,02	317,92

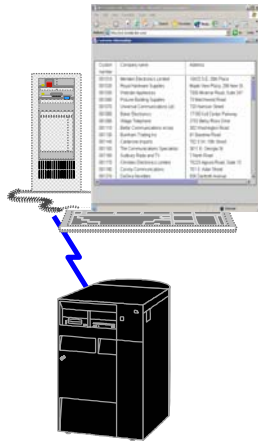
BILANCIAMENTO CENTRI SELEZIONATI

Cd.L.	Mch.	Descrizione	Data	Articolo	De-
602	055	Linea conf. 1	19/03/2001	30001000	ELETTROPOMPA
602	055	Linea conf. 1	19/03/2001	30001001	ELETTROPOMPA
602	055	Linea conf. 1	19/03/2001	30001001	ELETTROPOMPA
602	055	Linea conf. 1	19/03/2001	30001001	ELETTROPOMPA
602	055	Linea conf. 1	19/03/2001	30001001	ELETTROPOMPA
602	055	Linea conf. 1	19/03/2001	30001001	ELETTROPOMPA
602	055	Linea conf. 1	19/03/2001	30001001	ELETTROPOMPA
602	055	Linea conf. 1	19/03/2001	30001001	ELETTROPOMPA
602	055	Linea conf. 1	19/03/2001	30001001	ELETTROPOMPA
602	055	Linea conf. 1	19/03/2001	30001002	ELETTROPOMPA
602	055	Linea conf. 1	19/03/2001	30001002	ELETTROPOMPA

Totale Carico Periodi: 294,5708
 Totale Potenziale Periodi: 649,0000

VARPG: running in browser

- **Two choices**
 - ▶ **Compile into Java**
 - ▶ Run as applet in a browser
 - ▶ **Use CITRIX MetaFrame**
 - ▶ Run Windows app in CITRIX MetaFrame
 - ▶ Newest version also supports Portlets

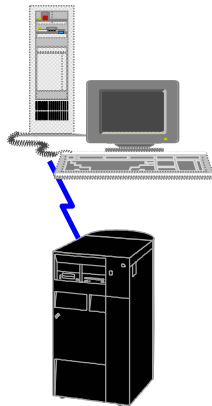


This chart depicts the hardware and software recommendations for using the VARPG development environment.

Note that the application runtime requirements are simply a reflection of the runtime requirements of the client operating system.

There is **NO RUN TIME LICENSE** required on the user's workstation to run applications created using VARPG Client/2.

VARPG: What You Need



- **Technical Environment**
 - ▶ PentiumIII processor
 - ▶ 128 Mb RAM VARPG (only)
 - ▶ 512 MB RAM WDS Sc workbench
 - ▶ Disk space: 750 MB standalone or 4.5 GB with WDS Sc workbench
 - ▶ Color display and mouse (recommend SVGA)
- **Windows 2000/XP**
- **Communications**
 - (TCP/IP)
- **iSeries System**
 - I5/OS or OS/400 V4R5 or later

This chart depicts the hardware and software recommendations for using the VARPG development environment.

Note that the application runtime requirements are simply a reflection of the runtime requirements of the client operating system.

There is **NO RUN TIME LICENSE** required on the user's workstation to run applications created using VARPG Client/2.

Summary

- ✓ **VARPG provides a complete C/S solution when combined with WDS
workbench**
- ✓ **GUI designer provides edit/compile/debug integration**
- ✓ **Use built in communications layer to access iSeries**
- ✓ **Use RPGIV features on the Client and on the Server**
- ✓ **Access data**
 - ✓ **in DB2 UDB for iSeries**
 - ✓ **in local ASCII files**
 - ✓ **or with embedded SQL in all DB2 supported servers**
 - ✓ **in *ODBC* databases**

→>>>Use your RPG skills and build GUI applications<<<

Agenda

- Overview
- The GUI designer
- The VARPG language
- Features
- Live demo of VARPG

Enjoy working with
VisualAge RPG!

-- Demo --

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Acknowledgment:

Many people contributed to this presentation. In particular, thanks goes to Claus Weiss - IBM Corporation for creating the original presentation.

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