

WebSphere Development Tools

IBM Toronto Development Laboratory

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Agenda Key: **22TA**
Session ID: **407144**

WDT/iSeries

New World

NewServers

New Tools

VisualAge RPG
GUI subfile programming

www.ibm.com/software/ad/wdt400

The easy way of using subfiles



WebSphere Development Tools for iSeries

Includes

CODE/400

- ✓ For RPG, COBOL, CL, C, C++, DDS

VisualAge RPG

- ✓ For RPG GUI

VisualAge for Java for AS/400

- ✓ For Java
- ✓ Pro plus Enterprise Toolkit for AS/400

WebSphere Studio For AS/400

- ✓ For Web sites and Web pages
- ✓ Standard plus Affinity Toolkit for AS/400

www.ibm.com/software/ad/wdt400





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Agenda

➔ GUI Subfile programming

● Basics

➔ Designing the subfile

➔ Creating fields

➔ Using reference fields

➔ Attributes

➔ Events

➔ VARPG op codes

The IBM logo, consisting of the letters 'IBM' in a bold, sans-serif font, is positioned at the bottom left of the slide.

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Agenda

➔ GUI Subfile programming

● Advanced features

➔ More attributes and events

➔ Page in GUI subfiles

➔ Use the Navigation bar

➔ Open cells for input

➔ Protect cells from change

➔ Colour

columns/rows/cells/heading

➔ Use events/event attributes

➔ Change event and READC





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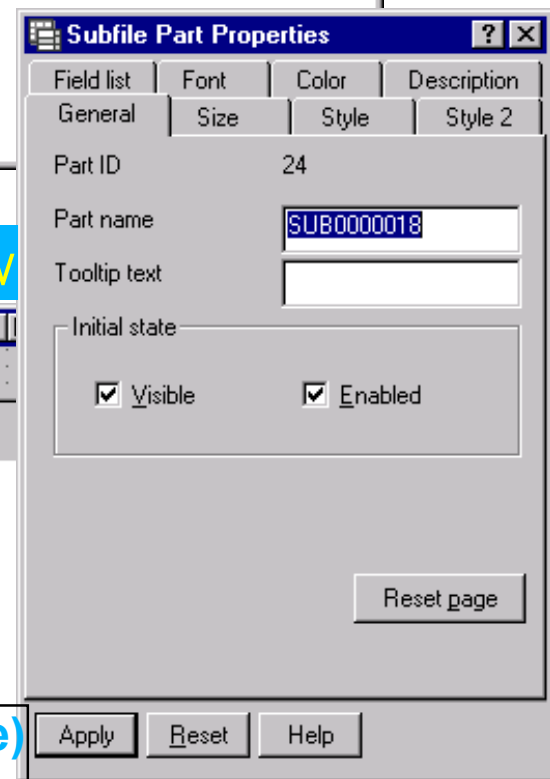
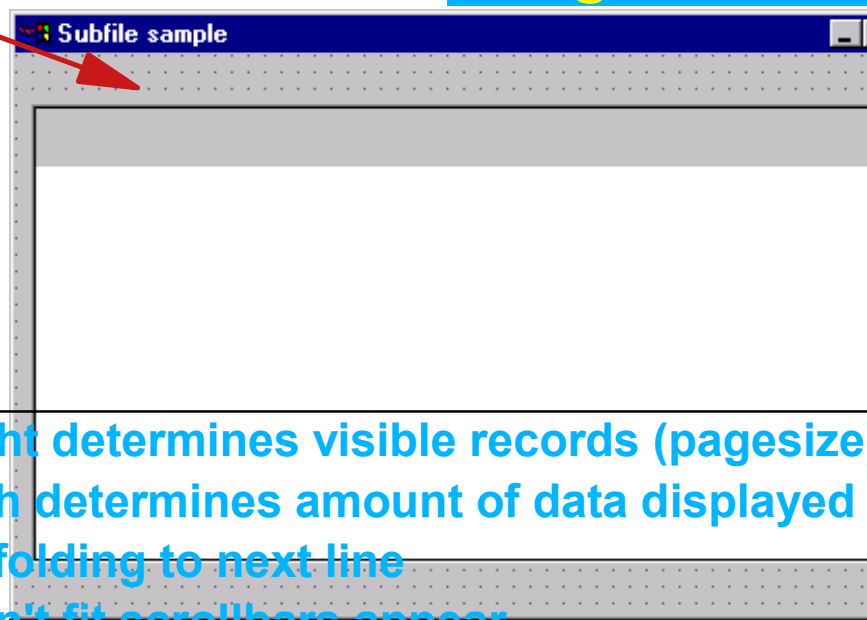
Creating a subfile

Project window



- Select subfile parts from palette
- Click on location in Design Window

Design window



- ➔ subfile height determines visible records (pagesize)
- ➔ subfile width determines amount of data displayed
 - no record folding to next line
- ➔ if data doesn't fit scrollbars appear





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Adding a subfile field

Parts Pal...

Sticky

To add a non-reference field to subfile
 Select entryfield part and click on subfile

Subfile sample

Subfile Part Properties

Field list	Font	Color	Description
EN0000000E			

Change...
Delete
Move up
Move down
Add before...
Add after...

Apply Reset Help

Subfile sample

Subfile er

Sample L

Sample L

- General page
- Reference page
- Style page
- Data page
- Editing page
- Validation page
- Description page

Use FieldList page in Subfile properties to change individual field attributes
 Also allows to move fields to left or right in subfile

Subfile Field Part Properties

Editing	Validation	Description	
General	Reference	Style	Data
Part ID	49		
Column name	Partno		
Field heading	Part		
Heading 2	number		
Heading 3			

Reset page

Apply Reset Help



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Changing field properties (attributes)

Subfile sample

Part number	
Sample C	
Sample C	
Sample C	

Subfile fields are very similar to entryfields
many of the attributes are very similar

Subfile Field Part Properties

Editing | Validation | Description

General | Reference | Style | Data

Options

Hidden Read only

Caps lock Auto select

Heading alignment

Left Center Right

Data alignment

Left Center Right

Column width (pixels) 77

Use this SpinButton to change column width
>>> At design time not directly dragable in design window <<<<

Subfile Field Part Properties

Editing | Validation | Description

General | Reference | Style | Data

Database

Length 7

Decimals 0

Type Character

Character

Reset page

Apply | Reset | Help

Data definition page

- Length
- Decimals
- Type
- Numeric
- Character
- DBCS

Subfile Field Part Properties

Editing | Validation | Description

Validation message

Validation

None Range

Comparison Values

Reset page

Apply | Reset | Help

Validation page





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Using reference fields in subfile

Define Reference Fields - VisualAge RPG

Field name
 <TORAS015>CELDIAL1/CUSTOMER/CUSTOM01

Always refresh Sticky Include labels
 Use cache Alternate cache

File → **Select AS/400**

- server
- library
- database file
- record format

CELDIAL1
 ARHISTORY
 CUSTOMER
 CUSTOM01
 CUSTOMERY

CUSTNO
 CUSTNA
 REPNO
 CONTAC
 CPHONE
 CFAX
 CADDR
 CCITY
 CCOUNT
 CZIP

List of fields in a selected record

Click and point to bring selected fields in subfile

Select fields in record format

Automatically all selected fields get added to subfile with their definitions

Subfile sample

Subfile sample

Custom	Company name	Telephon
Sample	Sample Data	Sample
Sample	Sample Data	Sample
Sample	Sample Data	Sample





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VARPG operation codes for GUI subfiles

- Subfile processing similar to 5250 subfile
 - Supports existing operation codes:
 - READC,
 - UPDATE
 - WRITE
 - CHAIN
 - New/Changed VARPG operation codes
 - ▶ **READS** - read a selected (highlighted) record
no subfile control record
 - ▶ **CLEAR** - clear all records from subfile
 - ▶ **DELETE** - delete a record from subfile
 - ★ **All records below the deleted record move up**
- No F spec entry for subfile, instead use operation code or function to:
 - SET attribute
 - GET attribute



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Subfile attributes and events

Attributes

- **INDEX** - like SFLRRN
- **SETTOP** - like SFLRCDNBR
- **SELECTED** - Returns whether subfile record is selected (0 or 1)
- **SELECTITEM** - Allows to select a record programmatically
- **OPENEDIT** - Opens cell for edit
- **COLNUMBER** - Selects/returns column (field)
- **COUNT** - Returns number of records in subfile

Events

- **Select** - left mouse button click
- **Enter** - left mouse button **double** click (+ Select event)
- **Popup** - right mouse click

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Fill subfile with data

WRITE Operation Code

To fill subfile when a Window is displayed use:

→ Create event from Window

READ records from database file

Write data to subfile

```
C      CUSTLIST      BEGACT      CREATE      CUSTLIST
*
C          READ      CustomL1      99
C          Dow      NOT *IN99
C          WRITE      SFL1
C          READ      CustomL1      99
C          EndDo
*
C          ENDACT
```





Fill subfile with data

- At start up, the RPG runtime connects to AS/400 and opens database file (info from F spec)
- GUI runtime starts the Event loop and creates the Window
 - **Create** event gets fired from the Window
 - event loop catches **create** event
 - It invokes the action subroutine
 - Logic in the action subroutine fills subfile
 - EndAct op code is reached
 - Control returns back to GUI runtime event loop

Custom	Company name	Telephone
001010	Meridien Electronics Limited	206-865-402
001020	Royal Hardware Supplies	905-619-204
001030	Webster Appliances	619-549-521
001040	ProLine Building Supplies	905-403-405
001050	Donnamora Construction	905-805-229
001060	Chicago Wholesale Suppliers	613-442-209
001070	Universal Communications Ltd.	415-545-505
001080	Baker Electronics	818-715-204





Select a record from subfile

React to Select event from subfile

use

READS

to get selected record

Customer number	Company name	Telephone
0010100	Meridien Electronics Limited	206-865-4027
0010200	Royal Hardware Supplies	905-619-2045
0010300	Webster Appliances	619-549-5212
0010400	ProLine Building Supplies	905-403-4055
0010500	Donnamora Construction	905-805-2295
0010600	Chicago Wholesale Suppliers	613-442-2095
0010700	Universal Communications Ltd.	415-545-5055
0010800	Baker Electronics	818-715-2045
0010900	Village Telephone	707-367-4530
0011000	Bayview Sales	416-971-2048



```

C      SFL1          BEGACT   SELECT   CUSTLIST
*
C      READS        SFL1          99
C      .....
*
C      ENDACT

```





Select multiple records from subfile

READS Operation Code

READ Selected records from Subfile

End of file if no more selected records

Customer number	Company name	Telephone
0010100	Meridien Electronics Limited	206-865-4027
0010200	Royal Hardware Supplies	905-619-2045
0010300	Webster Appliances	619-549-5212
0010400	ProLine Building Supplies	905-403-4055
0010500	Donnamora Construction	905-805-2295
0010600	Chicago Wholesale Suppliers	613-442-2095
0010700	Universal Communications Ltd.	415-545-5055
0010800	Baker Electronics	818-715-2045
0010900	Village Telephone	707-367-4530
0011000	Bayview Direct Sales	416-971-2048
0011100	B.W. Co.	914-385-8881

```

C      SFL1          BEGACT      POPUP      CUSTLIST
*
C          READS      SFL1          99
C          DoW        NOT *IN99
C          ...
C          READS      SFL1          99
C          EndDo
C          *
C          ENDACT
  
```



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Agenda

→ GUI Subfile programming

✓ Basics

- ✓ Designing the subfile
- ✓ Creating fields
- ✓ Using reference fields
- ✓ Attributes
- ✓ Events
- ✓ VARPG op codes

→ Advanced features

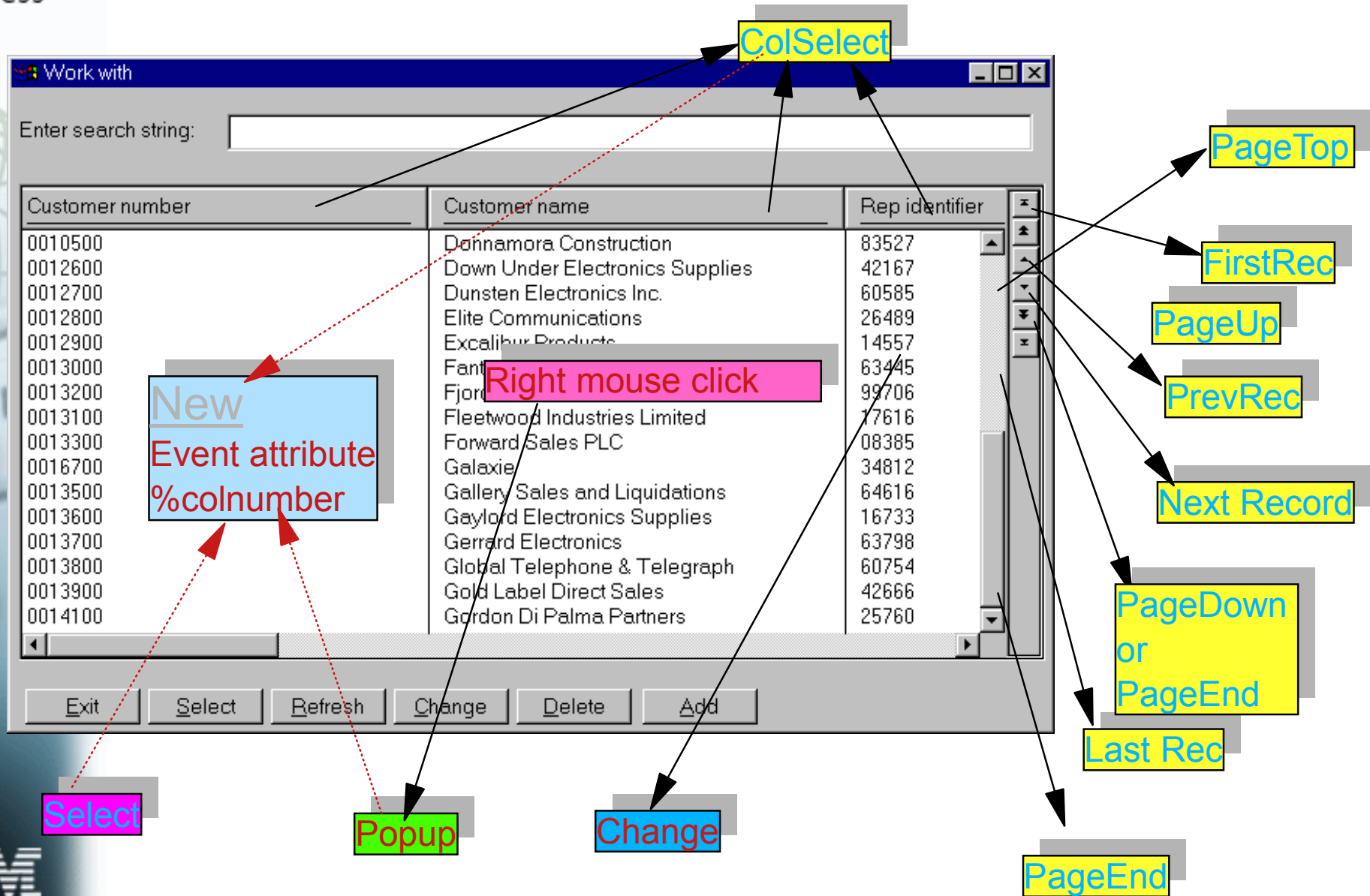
- Additional events
- Page in GUI subfiles
- Use the Navigation bar
- Open cells for input
- Protect cells from change
- Subfile attributes
- Use events/event attributes





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More subfile attributes and events





Sample code to fill a subfile page

Fill page and position list at last record

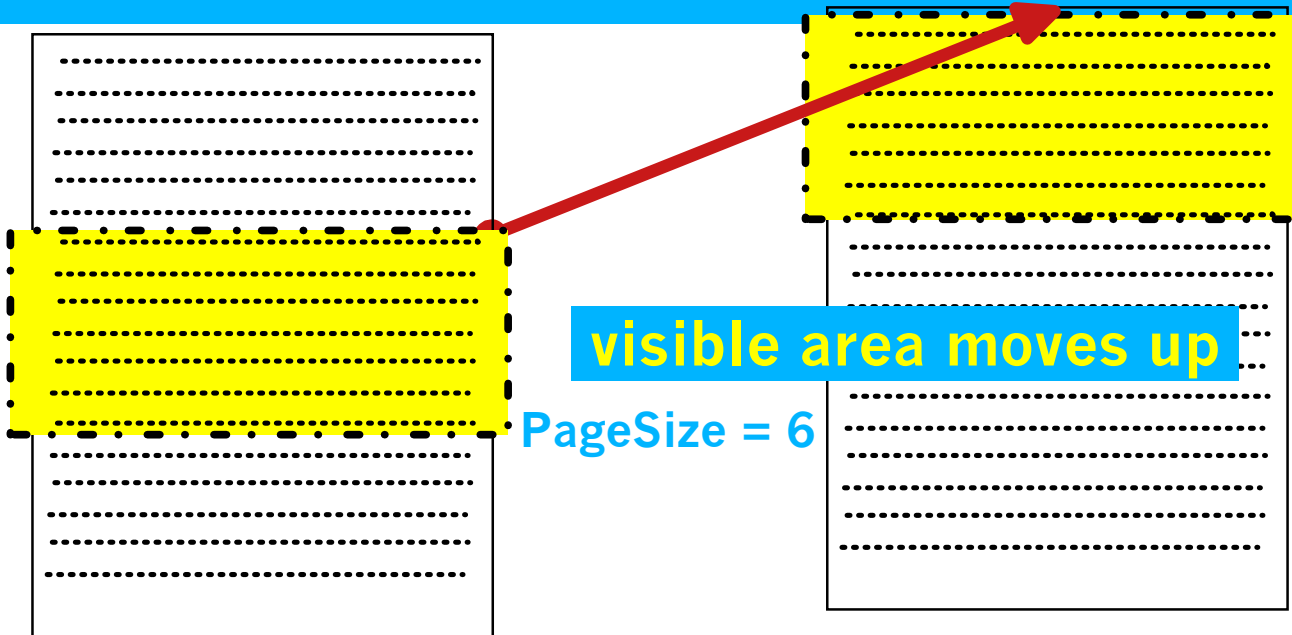
```
      C      fillpage      begsr
C*  loop to fill subfile
C*  with one page
      c              eval      counter=1
      C              read(e)   CUSTOM01
      C              dow       pagesize>=counter and not %eof
C*   if more data write to subfile
      C              | Write   SUBF12
=====> Here goes code to change color
      c              | eval    counter=counter+1
      c              | if      pagesize>=counter
      C              | | read(e)  CUSTOM01
      c              | endif
      C              enddo
      c              eval      indflend=%eof
C*   get count from subfile, how many records are in it now?
      C              eval      subcount=%getatr('WINSUB1':
      C              'SUBF12':'count')
C*   move last record to settop to get the last record
C*   shown in subfile
      c              if        not indnextrec
      C              | eval    %setatr('WINSUB1':
      C              |         'SUBF12':'settop')=subcount
      c              endif
      C              endsr
```

Variable pagesize gets set by subfile attribute pagesize at create of window
`pagesize=%getatr('custlist':'subf12':'pagesize')`



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Sample code to page up in subfile



```

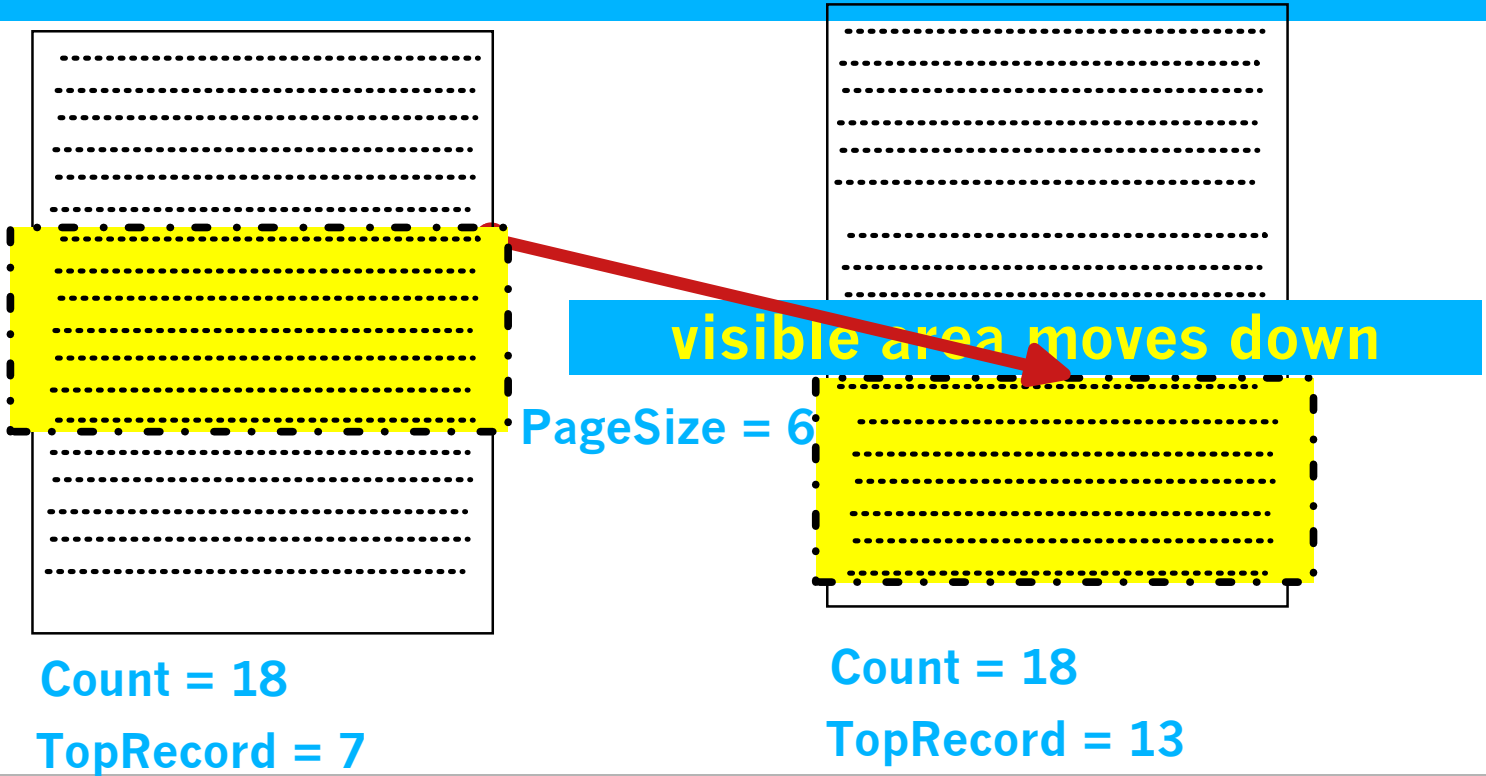
C      SUBF12          BEGACT      Pageup      WINSUB1
C      eval          toprec=%getatr('winsub1':
C      'subf12':'toprecord')
C      eval          toprec=toprec-pagesize
C      if            toprec<1
C      eval          toprec=1
C      endif
C      eval          %setatr('WINSUB1':
C      'SUBF12':'settop')=toprec
C      ENDACT

```



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Sample code to page down in subfile



```

C      SUBF12      BEGACT      Pagedown      WINSUB1
C      eval      toprec=%getatr('winsub1':
C      'subf12':'toprecord')
C      eval      toprec=toprec+pagesize
C      if      toprec>subcount
C      exsr      fillpage
C      if      indflend
C      eval      toprec=subcount
C      endif
C      endif
C      eval      %setatr('WINSUB1':
C      'SUBF12':'settop')=toprec
C      ENDACT

```

← If no more records to show in subfile add the next page by reading more records from the data base



Navigation bar

- Navigation bar can be shown or collapsed
- Individual buttons can be shown or hidden
- Individual buttons can be enabled or disabled



Subfile Part Properties

Field list	Font	Color	Description
General	Size	Style	Style 2

Navigation buttons

Navigation buttons	Tooltip text
<input checked="" type="checkbox"/> First Record	
<input checked="" type="checkbox"/> Page Up	
<input checked="" type="checkbox"/> Previous Record	
<input checked="" type="checkbox"/> Next Record	
<input checked="" type="checkbox"/> Page Down	
<input checked="" type="checkbox"/> Last Record	
<input checked="" type="checkbox"/> Show	
<input checked="" type="checkbox"/> Enable toolbar collapsing/expanding	

Reset page

Apply Reset Help

Work with

Enter search string:

Customer number	Customer name	Record
0010500	Donnamora Construction	63527
0012600	Down Under El	42167
0012700	Dunsten Electr	60585
0012800	Elite Communications	26489
0012900	Excalibur Products	145
0013000	Fantastic Future Supplies	63445
0013200	Fjord Consumer Industries	99706
0013100	Fleetwood Industries Limited	17616
0013300	Forward Sales PLC	08385
0016700	Galaxie	34812
0013500	Gallery Sales and Liquidations	64616
0013600	Gaylor Electronics Supplies	16733
0013700	Gerrard Electronics	63798
0013800	Global Telephone & Telegraph	60754
0013900	Gold Label Direct Sales	42666
0014100	Gordon Di Palma Partners	25760

Exit Select Refresh Change Delete Add

PageTop

FirstRec

PageUp

PrevRec

Next Record

PageDown

PageEnd

Last Rec

PageEnd

- To enable/disable button or to specify Tooltip text
 - First set ButtonIDX attribute
 - Second
 - set EnableBtn or ButtonTip attribute



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Open cells for input example

- **AllowEdit** attribute,
 - controls user input capability on a record, column, or cell level
 - Values supported
 - 1 Prevents editing the entire subfile
 - 2 Prevents editing a specific record
 - 3 Prevents editing specific column
 - 4 Prevents editing specific cell

 - 11 allows editing the entire subfile
 - 12 allows editing a specific record
 - 13 allows editing a specific column
 - 14 allows editing a specific cell

Customer number	Customer name	Rep identifier	Name
0016000	A/S Mobiltelefon	77107	Hr. direktør M
0017700	Artigos de Escritorio Ltda.	73282	Eduardo Rob
0010800	Baker Electronics	15445	Dave Matthis
0011000	Bayview Direct Sales	28899	Deb Buchane
0011100	BelAir Communications	12203	Doreen Coin
0011200	Bridlewood Electronics Supplies	10716	Doug Reedy
0011300	Burnham Trading Inc	41480	Efrem Helass
0011400	Calderone Imports	00477	Elsie Pons
0010600	Chicago Wholesale Suppliers	61636	Celesta Cong
0011700	Christies Electronics Limited	32484	George Bacc
0011800	Clement Works	64349	Gery Kirkfield
0013400	Communications Fournier	13497	Mitch Faulklar
0012200	Communications-R-Us Corporation	22004	Jack Deauso
0017000	Computer Friends B.V.	48672	Hans Maas
0011900	Conroy Communications	25189	Guy Lewis
0012000	Cumberland Specialties	17983	Heather Dobs

- Open a cell with **ALT** mouse click
or from your program **OpenEdit** attribute
- When leaving cell, subfile **Change** event gets fired
- Use **READC** to check which record got changed



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Protect or open cells, sample code

Protect column from being opened

```

C* Protect column 1 from being opened for edit
C      'sf11'          setatr      1          'colnumber'
C      'sf11'          setatr      3          'AllowEdit'

```

Work with

Enter search string:

Index	Name	Rep identifier	Name
0011000	BelAir Communications	77107	Hr. direktor M
0011100	Bridlewood Electronics Supplies	73282	Eduardo Rob
0011200	Burnham Trading Inc	15445	Dave Matthi
0011300	Calderone Imports	28899	Deb Buchane
0011400	Chicago Wholesale Suppliers	12203	Doreen Coin
0010600	Christies Electronics Limited	10716	Doug Reedy
0011700	Clement Works	41480	Efrem Helass
0011800	Communications Fournier	00477	Elsie Pons
0011900	Communications-R-Us Corporation	61636	Celesta Cong
0012000	Computer Friends B.V.	32484	George Bacc
0017000	Conroy Communications	64349	Gery Kirkfiel
0018000		13497	Mitch Faulkla
0019000		22004	Jack Deauso
0010000		48672	Hans Maas
0011000		25189	Guy Lewis
0012000		17983	Heather Dobs

ete Add 016

Open specific cell

```

C* Open cell for edit in record(index) 18 column 2
C      SFL1           BEGACT      POPUP           CUSTLIST
C      'sf11'         setatr      18             'index'
C      'sf11'         setatr      2             'colnumber'
C      'sf11'         setatr      1             'openedit'
C      ENDACT

```





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Input validation in GUI subfiles

- 3 ways to check valid input in subfile cell
- specify validation on column
- react to change event and check input
- use READC to get changed records

0010100	Meridien Electronics Limited	10423 S.E. 30th Place
0010200	Royal Hardware Supplies	Maple View Plaza, 256 New St.
0010300	Webster Appliances	7350 Miramar Road, Suite 247
0010400		73 Marchwood Road
700	Universal Communications Ltd.	720 Harrison Street
800	Baker Electronics	17150 Koll Center Parkway
900	Villano Telephone	2752 Betsy Ross Drive
100		
300		
400		
500		
600		

Subfile Field Part Properties

General | Reference | Style | Data

Editing | **Validation** | Description

Validation message
*MSG0001

Validation

None Range

Comparison Values

Current Database

Operator
NE - not equal EQ

Value

Reset page

Apply Reset Help

Customer List

Customer name field has to be no-blank, please fill this field

OK

No coding involved just specify validation in notebook

Validation gets triggered when leaving the cell





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Use change event to check input on field level

Customer List

	City	Country
Plaza, 256 New St.	Ajax, Ontario	Canada
ar Road, Suite 247	San Diego	USA
wood Road	Burlington, ON	USA
on Street	San Francisco	USA
Center Parkway	Pasadena, CA	USA
ross Drive	Santa Clara, CA	USA
ngton Road	White Plains, NY	USA
e Road	Trenton, Ontario	Canada
5th Street	Boca Raton, FL	USA
orgia St.	Jacksonville, FL	USA
ad	Sudbury, Ontario	Canada

Change event when leaving cell

Display selected data Display all data Change selected

```

C      SFL1      BEGACT      CHANGE      CUSTLIST
c      %index   chain      sfl1      99
c      select
c      when      %colnumber=1
c      if      custno>9999
c      'Custno'  dsply      msg1      rc
c      endif
c      when      %colnumber=4
c      if      ccity=*blank
c      'City'    dsply      msg1      rc
c      endif

```



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Use READC to check input on record level

Customer List

Customer number	Company name	Address
0010100	Meridien Electronics Limited	10423 S.E. 30th Place
0010200	Royal Hardware Supplies	Maple View Plaza, 256 Ne
0010300	Webster Appliances	7350 Miramar Road, Suite
0010400	Line Building Supplies	73 Marchwood Road
0010700	iversal Communications Ltd.	720 Harrison Street
0010800	Baker Electronics	Center Parkwa
0010900	Village Telephone	Ross Drive
0011100	BelAir Communications incorp.	nton Road
0011300	urnham Trading Inc	Road
0011400	Calderone Imports	h Street
0011500	The Communications Specialists	gia St.

Customer List 4
OK

Display selected data Display all data Done Change selected

```

C      PSBDONE      BEGACT      PRESS      CUSTLIST
c      eval      %setatr('custlist':'sf11':'startat')=1
c      READC      sf11      9090
c      dow      not *in90
*      check fields of changed records
c      eval      index=%getatr('custlist':'sf11':'Index')
c*      if error >>> display message
c      eval      %setatr('custlist':'sf11':'sflnxtchg')=1
c      index      dsply      msg1      rc
c*      else >>> handle next changed record
c      eval      %setatr('custlist':'sf11':'startat')=
c      index+1
c*      endif
c      readc      sf11      9090
c      enddo
C      ENDACT

```



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Using values for subfile columns

VARPG new feature (M3)

- specify Values for a subfile fields (columns)
- when opened for Input a Combobox is displayed

Subfile Field Part Properties

General | Reference | Style

Editing | Validation | Des

Validation message

Validation

None Range

Comparison Values

Current Data

Specify values here or in your code

Add... Insert... Res

Change... Delete

Apply Reset Help

	City	Country
h Place	Bellevue, WA	U.S.A.
Plaza, 256 New St.	Ajax, Ontario	Canada
Road, Suite 247	San Diego, CA	USA
d Road	Burlington, Ontario	Canada
Street	San Francisco, CA	Canada
inter Parkway	Pasadena, CA	USA
oss Drive	Santa Clara, CA	USA
on Road	White Plains, NY	USA
oad	Trenton, Ontario	Canada
Street	Boca Raton, FL	USA
gia St.	Jacksonville, FL	USA

Display selected data Display all data Done Change selected

```

C      'sf11'      setatr      5      'colnumber'
c      'sf11'      setatr      'Canada'  'additemend'
c      'sf11'      setatr      'USA'    'additemend'
c      'sf11'      setatr      'Germany' 'additemend'
c      'sf11'      setatr      'others'  'additemend'

```



Subfile attributes

→ Subfile attributes:

- Visual attributes

- BackColor, BackMix, Bottom, FontArea, FontBold, FontItalic, FontName, FontSize, FontStrike, FontUnder, ForeColor, ForeMix, Height, HRule, Left, Scale, ShowTips, SizeToFit, TipText, Top, UserData, Visible, VRule, Width

- Functional attributes

- AllowEdit, Count, Enabled, ExtSelect, Focus, MultSelect, NbrOfSel, PageSize, SelectListSetTop, SflNxtChg,

- Identification attributes

- Handle, ParentName, PartName, PartType,

→ Navigationbar attributes

- Buttons, ButtonIdx, ButtonTip, EnableBtn

→ Cell attributes

- AllowEdit, OpenEdit, CellBGClr, CellBGMix, CellFGClr, CellFGMix

→ Column attributes

- AllowEdit, AutoSelect, CapsLock, ColBGClr, ColBGMix, ColFGClr, ColFGMix, ColNumber, ColWidth, Hidden

- Combo box

- AddItemEnd, ItemCount, RemoveItem, SelectItem, SelectList,

→ Row attributes

- AllowEdit, DeSelect, FirstSel, Index, RowBGClr, RowBGMix, RowFGClr, RowFGMix, Selected, StartAt, TopRecord

→ Heading attributes

- FontBold, FontItalic, FontName, FontSize, FontStrike, FontUnder, ForeColor, ForeMix, HdgBGClr, HdgBGMix, HdgFGClr, HdgFGMix, HdgIdx, HdgText (specify FontArea first, then FONT)



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Enhanced subfile support.....Colour/Font attributes

Heading colour

HdgBGClr/HdgBGMix

HdgFGClr/HdgFGMix

Subfile colour

BackColor/BackMix

ForeColor.ForeMix

Cell colour

CellFGClr/CellFGMix

CellBGClr/CellBGMix

→ Row colour

→ RowFGClr/RowFGMix

→ RowBGClr/RowBGMix

→ Column Colour

→ ColFGClr/ColFGMix

→ ColBGClr/ColBGMix

Work with

Enter search string:

Customer number	Customer name	Rep identifier
0016000	A/S Mobiltelefon	77107
0017700	Artigos de Escritorio Ltda.	73282
0010800	Baker Electronics	15445
0011000	Bayview Direct Sales	28899
0011100	BelAir Communications	12203
0011200	Bridlewood Electronics Supplies	10716
0011300	Burnham Trading Inc	41480
0011400	Calderone Imports	00477
0010600	Chicago Wholesale Suppliers	61636
0011700	Christies Electronics Limited	32484
0011800	Clement Works	64349
0013400	Communications Fournier	13497
0012200	Communications-R-Us Corporation	22004
0017000	Computer Friends B.V.	48672
0011900	Conroy Communications	25189
0012000	Cumberland Specialties	17983

Exit Select Refresh Change Delete Add

Font -Bold -Italic -Name -Size -Strike -Under





Change row and cell color

Sample code to change row color and cell color in subfile

Inside loop in subroutine FillPage add this code to change color

```
c* change background colour
c* and foreground colour
c* every other record
c          if          indeven
C          |          eval          %setatr('WINSUB1':
C          |          |          'SUBF12':'RowBgmix')='247:245:183'
C          |          eval          %setatr('WINSUB1':
C          |          |          'SUBF12':'RowFgClr')=*darkgreen
c          |          eval          indeven=*off
c          |          else
c          |          eval          indeven=*on
c          |          endif
c* change cell background colour
c          if          counter=5
C          |          eval          %setatr('WINSUB1':
C          |          |          'SUBF12':'colnumber')=3
C          |          eval          %setatr('WINSUB1':
C          |          |          'SUBF12':'CellBgCLR')=*red
c          |          endif
```



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Enhanced subfile support.....more attributes

- AutoSelect
- CapsLock
- ColWidth
- FirstSel
- HdgText
- Hidden
- HRule
- NbrOfSel
- OpenEdit
- Pagesize
- Scale
- SelectList
- SfInxtChg
- ShowTips
- SizeToFit
- StartAt
- TipText
- TopRecord
- VRule

Work with

Enter search string:

Customer number	Customer name	Rep identifie	Name
0016000	A/S Mobiltelefon	77107	Hr. direktor M. Nielsen
0017700	Artigos de Escritorio Ltda.	73282	Eduardo Roberto Pereira
0010800	Baker Electronics	15445	Dave Matthison
0011000	Bayview Direct Sales	28899	Claus Weiss
0011100	BelAir Communications	12203	Doreen Coin
0011200	Bridlewood Electronics Supplies	10716	Larry Schweyer
0011300	Burnham Trading Inc	41480	Efrem Helassie
0011400	Calderone Imports	00477	Elsie Pons
0013400	Communications Fournier	13497	Mike Faulkland
0012200	Communications-R-U's Corporation	22004	Jack Deason
0017000	Computer Friends B.V.	48672	Hans Maas
0012000	Cumberland Specialties	17983	Heather Dobson
0012300	Danton Industries	32984	Jack Vance
0012100	DaSilva Novelties 123	25189	Guy Lewis
0012400	Detroit Communications Enterprises	65009	Jay Buckford
0012500	Diplomat Sales and Liquidations	00488	Jim Van Voight

Exit Select Refresh Change Delete Add

Columnwidth is changeable at runtime
 → just use the mouse pointer





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Attributes for selected records

FirstSel

NbrofSel

SelectList

Customer number	Company name	Address
0010100	Meridien Electronics Limited	10423 S.E. 30th Place
0010200	Royal Hardware Supplies	Maple View Plaza, 256 New St
0010300	Webster Appliances	7350 Miramar Road, Suite 247
0010400	ProLine Building Supplies	73 Marchwood Road
0010700	Universal Communications Ltd.	720 Harrison Street
0010800	Baker Elec	17150 Koll Center Parkway
0010900	Village Telephone	2752 Betsy Ross Drive
0011100	BelAir Communications incorp.	302 Washington Road
0011300	Burnham Trading Inc	91 Baseline Road
0011400	Calderone Imports	702 S.W. 15th Street
0011500	The Communications Specialists	3011 E. Georgia St.

Buttons: Display selected data, Display all data, Done, Change selected

→ FirstSel = 2

→ NbrOfSel = 4

→ SelectList= 2 6 8 10



represents a blank





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Cell/column attributes

Company name	Address	City	Country
Meridien Electronics Limited	10423 S.E. 30th I	Bellevue, WA	U.S.A.
Royal Hardware Supplies	Maple View Pla	Ajax, Ontario	Canada
Webster Appliances	7350 Miramar R	San Diego, CA	USA
ProLine Building Supplies	73 Marchwood F	Burlington, Onta	Canada
Universal Communications Ltd.	720 Harrison Str	San Francisco, I	USA
Baker Elec	17150 Koll Cente	Pasadena, CA	USA
Village Telephone	2752 Betsy Ros	Santa Clara, CA	USA
BelAir Communications incorp.	302 Washington	White Plains, N	USA
Burnham Trading Inc	91 Baseline Ro	Trenton, Ontario	Canada
Calderone Imports	702 S.W. 15th St	Boca Raton, FL	USA
The Communications Specialists	3011 E. Georgia	Jacksonville, FL	USA

Buttons: Display selected data, Display all data, Done, Change selected

→ To work with a column, first set the ColNumber attribute

→ Cell attributes

- AllowEdit
- OpenEdit

→ Column with value specified (Combobox cell)

- AddItemEnd
- ItemCount
- RemoveItem

→ Column attributes

- AllowEdit
- AutoSelect
- CapsLock
- ColNumber
- ColWidth
- Hidden



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Row attributes

TopRecord
= Top visible record

Company name	Address	City	Country
Meridien Electronics Limited	10423 S.E. 30th I	Bellevue, WA	U.S.A.
Power Hardware Supplies	Maple View Pla	Ajax, Ontario	Canada
Webster Appliances	7350 Miramar R	San Diego, CA	USA
ProLine Building Supplies	73 Marchwood F	Burlington, Onta	Canada
Universal Communications Ltd.	720 Harrison Str	San Francisco, I	USA
Baker Elec	17150 Koll Cente	Pasadena, CA	USA
Village Telephone	2752 Betsy Ros	Santa Clara, CA	USA
BelAir Communications incorp.	302 Washington	White Plains, N	USA
Burnham Trading Inc	91 Baseline Roa	Trenton, Ontario	Canada
Calderone Imports	702 S.W. 15th St	Boca Raton, FL	USA
The Communications Specialists	3011 E. Georgia	Jacksonville, FL	USA

Buttons: Display selected data, Display all data, Done, Change selected

→ Row attributes

- AllowEdit
- DeSelect
- FirstSel
- Index
- Selected
- SelectItem
- StartAt
- TopRecord



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Heading attributes

HdgIdx

Customer number	Company name	Address
0010100	Meridien Electronics Limited	10423 S.E. 30th Place
0010200	Royal Hardware Supplies	Maple View Plaza, 256 New
0010300	Webster Appliances	7350 Miramar Road, Suite
0010400	ProLine Building Supplies	73 Marchwood Road
0010700	Universal Communications Ltd.	720 Harrison Street
0010800	Baker Electronics	17150 Koll Center Parkway
0010900	Village Telephone	2752 Betsy Ross Drive

→ Heading attributes

- FontBold,
- FontItalic
- FontName
- FontSize
- FontStrike
- FontUnder
- HdgIdx,
- HdgText

→ To change heading text, first set HdgIdx, then change HdgText attribute



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Subfile attributes

Customer	Company name	Address
0010100	Meridien Electronics Limited	10423 S.E. 30th Place
0010200	Royal Hardware Supplies	Maple View Plaza, 256 New S
0010300	Webster Appliances	7350 Miramar Road, Suite 24
0010400	ProLine Building Supplies	73 Marchwood Road
0010700	Universal Ltd.	720 Harrison Street
0010800	Baker Electronics	17150 Koll Center Parkway
0010900	Village Telephone	2752 Betsy Ross Drive
0011100	BelAir Communications Inco	
0011300	Burnham Trading Inc	
0011400	Caldero	
0011500	The Communications Specialists	

Top

Left

Height

Width

Bottom

Tooltip

Functional attributes

- AllowEdit
- Count
- Enabled
- ExtSelect
- Focus
- MultSelect
- NbrOfSel
- PageSize
- SelectList
- SetTop
- SflNxtChg
- DeSelect
- Index
- StartAt
- TopRecord

Visual attributes

- Bottom (Pixels)
- Font attributes
- Height (Pixels)
- HRule
- Left (Pixels)
- Scale
- ShowTips
- SizeToFit
- TipText
- Top (Pixels)
- UserData
- Visible
- VRule
- Width (Pixels)

Identification attributes

- Handle
- ParentName
- PartName
- PartType



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Events and Event attributes

→ Subfile events

- Change
- ColSelect
- Create
- Destroy
- Enter
- FirstRec
- GotFocus
- KeyPress
- LastRec
- LostFocus
- MouseEnter
- MouseExit
- MouseMove
- NextRec
- PageDown
- PageEnd
- PageTop
- PrevRec
- Select
- VKeyPress

→ Subfile events related to open cells

- Change
- KeyPress
- VKeyPress

Event attributes

→ %index

- change
- popup
- select

→ %Alt

- %Character
- %Control
- %Shift

- KeyPress

- VKeyPress

→ %colnumber

- change
- ColSelect
- popup
- select

Define Event attributes as variables

```
d %colnumber      s          1  0
d %index          s          4  0
```



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Using the ColSelect event

Address	City	Country
Argade 26B, st. tv., Menigheden	Aaby	Denmark
View Plaza, 256 New St.	Ajax, Ontario	Canada
bus 577	Amsterdam	Netherlands
Wilson Boulevard	Arlington, VA	USA
House, Chased Road	Ashton, Middlesex	UK
Trade Port Blvd, Suite 1010	Atlanta, GA.	USA
Burnet Road	Austin, TX	USA
venue D'Italie	Bannolet, Paris	France

Press anywhere on the heading for ColSelect event

```

C      SFL1          BEGACT      COLSELECT      CUSTLIST
c
c      select
c      when          %colnumber=4
c      open          customs4          90
c      eval          sortcity=*on
c      when          %colnumber=1
c      close         customs4          90
c      *start
c      setll         customl3
c      eval          sortcity=*off
c      other
c      leavesr
c      ends1
c      clear
c      eval          first=-1          sfl1
c      exsr          FillSub
c      eval          first=1
c      ENDACT
=====
c      Fillsub      begsr
c      .....
c      if          not sortcity
c      read        customl3          9999
c      else
c      read        customs4          9999
c      endif

```





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New subfile attributes in V4R5M1

→ Subfile attributes

- EditColumn
- EditIndex
- EditText

→ For open cell return

- Column number
- Index number
- Text

The IBM logo, consisting of the letters 'IBM' in a bold, sans-serif font.



New subfile attributes in V5R1M0

→ Subfile attributes

- MapViewCol
- DColFRVCol
- VColFRDCol
- SortAsc
- SortDesc
- Columns

- Change column sequence at runtime
- Sort subfile by specific Column
- Return how many columns are defined





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Summary

- ✓ **GUI subfiles are very easy to code**
 - **Does not have a control record**
- ✓ **React to different events to customize user interface**
- ✓ **Many attributes to give user interface a professional look**
- ✓ **READC, WRITE, READS op codes**
 - **Allow VARPG logic to be similar to RPGIV logic for green screen subfiles**
- ✓ **Database reference feature to easily design subfile**
- ✓ **Enjoy working with VisualAge RPG**