Creating A Finder Program

Contents

Welcome	2
Program overview	2
Skills	2
Getting started	3
Creating a program	3
Understanding the overview screen	3
The non-subfile section	4
The subfile section	4
Creating a subfile section	4
Adding a subfile primary file	5
The screen formatter	6
Changing the subfile format	6
The window	7
Creating a window	7
Changing the non-subfile format	8
Finishing off	9
Returning parameters	9
Sending the window lowlit	9
Generating the program	10
Quick reference	11

Welcome

Welcome to this Genesis tutorial. These tutorials are designed to introduce you to the major features and functions of the Genesis V code generator. The main goal of the tutorial is to teach you all the basic skills you will need to successfully create RPG programs on your AS/400 using Genesis V PractiCASE.
Although this tutorial is written in a step by step manor, PractiCASE does not confine you to creating programs in a linear fashion, except where a definite hierarchical structure exists. For example, you must specify a non-subfile section before a subfile section.
Other than this type of situation, you can let your creativity flow and build up a program specification in your own style!
For this tutorial, we are going to use the speed entry method to create a subfile finder program like the one shown here –

The speed entry method does have some auto-navigation features where PractiCASE will prompt you for information where needed.

An example of this would be when you add a physical file, PractiCASE will ask you for a logical file if you haven't specified one.

Any time you need help within PractiCASE, you can hit the Help key for help relevant to the screen you are at, or position the cursor in a field and type '?' or hit F4 to obtain a list of values.

Program overview

This program is going to display a list of customers in a Genesis window.
The user will be able to select a customer from the list to pass back to a calling program (e.g. a customer maintenance program).
The list can be relocated to a specific customer by overtyping an existing customer lookup mnemonic.

Skills

With this tutorial, you will learn

- ✓ How to specify a subfile primary file for read only.
- ✓ How to create a locate field in the subfile body.
- ✓ How to edit a subfile screen format.
- ✓ How to create a window.
- ✓ How to control display attributes.
- ✓ How to suppress standard function keys.

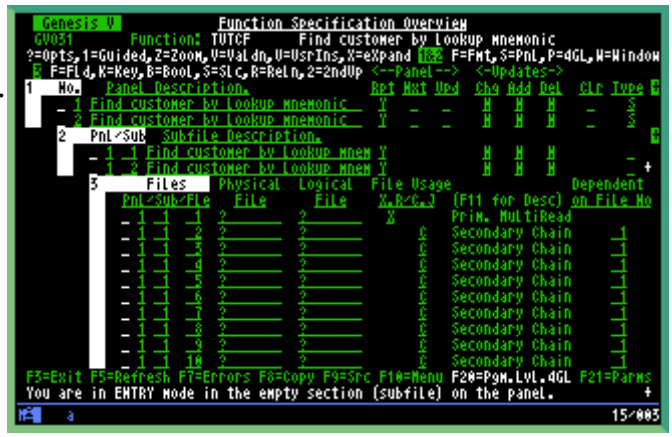
Getting Started

Lesson 1. Creating a program

The first thing to do is create a program entry in the ‘List of Application Functions’.
You can achive this by either taking option ‘I’ to insert new records in the list, or locate to the end of the list where you will find empty records.
Anywhere you see a subfile section within PractiCASE, empty records appear lowlit, and records read from the database appear highlit.
Some subfile records appear lowlit but have data in them. These are empty records, but have been defaulted data to speed up program specification. They have not yet been written to the database.
Give the program a unique name, for this tutorial use ‘TUTCF’ if it is available. Give the program a description of ‘Find customer by lookup mnemonic’, and a ‘Type’ of ‘S’ for screen.
Hit ENTER to write the record.
Now you have created a program entry, type ‘X’ in the action control box to go to the program overview screen.

Lesson 2. Understanding the overview screen

The ‘Function Specification Overview’ screen displays the program’s basic functions so the program can be understood at a glance.
The screen is split up into 3 list sections.
The first section headed ‘Panel Description’ shows the panels currently defined in this program. The second section ‘Subfile Description’ shows the subfiles defined on each panel, and the third section shows the files defined on each panel and subfile.



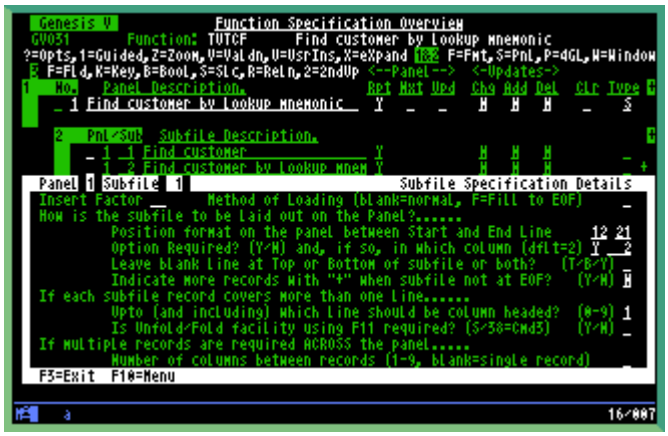
The Non-subfile Section

Even though this program will display it's data as a subfile, we still need to define a non-subfile section, because you can't have a subfile section without a non-subfile section.
Panel 1 already has the description 'Find customer by lookup mnemonic', so this is O.K.
In order to write panel 1, you can just touch the record. 'Touch' means you must overkey one of the fields in the record – note overkey, not change – you can 'touch' the record simply by overtyping panel number '1' with '1', and pressing ENTER.
Once the record has been written to the database, you will be asked to select a physical file to read – this is referring to the non-subfile section you have just added.
We don't want to read a file on the non-subfile, so hit F3 to return to the overview screen.

The Subfile Section

Lesson 3. Creating a subfile section

In the subfile section of the overview screen, there are two numeric fields headed 'Pnl/Sub'. The 'Pnl' field is the panel number the subfile is defined against, and the 'Sub' field is the number of the subfile. Subfile numbers must be unique within the program not just the panel.
To have panel 1, subfile 1 and panel 2 subfile 1 would be illegal – they would have to be numbered panel 1, subfile 1 and panel 2, subfile 2.
We are going to display customers here, so give panel 1, subfile 1 a description of 'Find customer', and hit ENTER.
You will now see the Subfile Specification Details window where you can specify a number of subfile criteria. We are only interested in changing the Start/End lines here.
The start/end lines are simply the line the subfile will start at on the screen and the line it will end at.
We will give our subfile a start line of 12 and an end line of 21. Later, we will draw a window around this subfile.



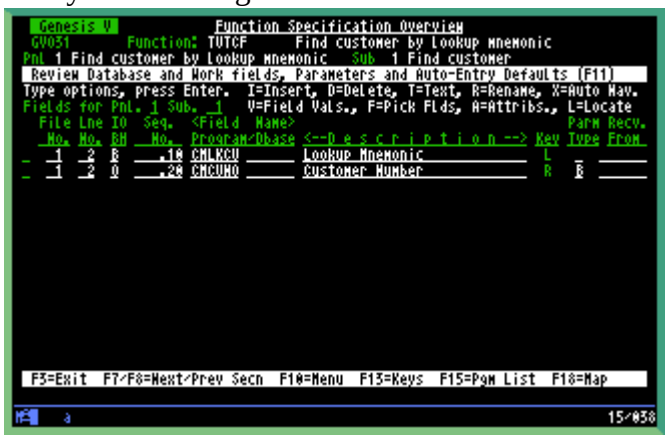
Note - You MUST specify both a start and an end line when displaying in a Genesis window.
Hit F3 to exit this display.

Lesson 4. Adding a subfile primary file

Once you have exitted the subfile details window, you will be prompted to select a physical file. You can hit F3 to exit this finder without a selection, but since we want to read customer records on the subfile, select ‘CUSMST’.

You will now be prompted to select a logical file. Again, you can hit F3 to exit this finder without a selection to use a program described logical file, but we want to use ‘CUSMSTL’ to display customers by lookup mnemonic, so select this file.

The keylist is automatically selected by the dynamic data modeler. If the data modeler guesses a key field, but is not sure how it is loaded, it will be picked as an input parameter to the program, and you will be taken to the field review screen so you can change this if it is incorrect.



As you can see, Lookup Mnemonic and Customer Number have been selected in the keylist.

Lookup Mnemonic has also been selected as an input parameter. It is unlikely the Lookup Mnemonic will be required to be passed around, so blank out the ‘Parm Type’ field. However, we do want to pass the Customer Number selected by the user back to the calling program, so give this a ‘Parm Type’ of ‘B’ for both passed in and out of the program. Hit F3 to return to overview.

At this point, we can review the keylist. Take option ‘K’ against ‘CUSMST’ in the file section of the overview screen.

As we have seen, Lookup Mnemonic has been selected as a ‘L’ocate key, and Customer Number as a ‘R’esequence key.

This keylist means the list can be relocated by the user to start with a specific record (or the next highest record), by changing the locate field on the screen.

The list will be sequenced by Lookup Mnemonic then Customer Number.

By default, PractiCASE creates the locate field for this type of program in the body of the subfile I.e. the user overtypes an existing entry to relocate.

This is one way of creating a relocating subfile. The other way is to move the locate field in to the subfile header.

For this tutorial, we will keep the locate field in the body.

We now need to pick the remaining fields that will be displayed on the screen. Take option ‘F’ against ‘CUSMST’ to pick more fields.

Lookup Mnemonic and Customer Number have already been selected, but we require Customer Name (CMNMCU), Address 1 (CMADR1), Address 2 (CMADR2), Address 3 (CMADR3), Address 4 (CMADR4), Address 5 (CMADR5), Telephone Number (CMFONO), Salesman Code (CMSLMN), and Cumulative Sales (CMABSV) as ‘O’utput only type fields.

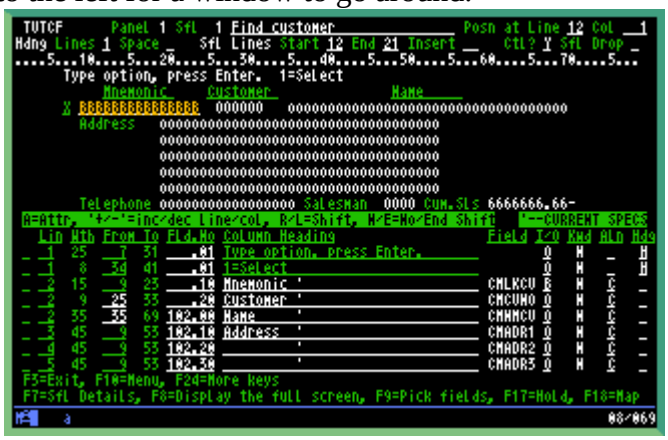
Select these fields with option ‘O’ for output, and hit F3 to return to overview.

The Screen Formatter

There are two screen formatters available to you – the non-subfile formatter, and the subfile formatter.
Each screen formatter is split into 2 sections. A WYSWYG (What You See is What You Get) section at the top, and a detail section at the bottom showing the fields and text that appear on the screen.
Fields and text can be added, removed, changed or repositioned in any of the sections of the screen formatter.
Any changes you make in the WYSIWYG section are immediately reflected in the detail section, and vice-versa.
You can reposition the WYSIWYG section by changing the value in the Position at line or Position at column boxes at the top right of the screen.
Changes can be made in the detail section of the formatter by simply changing the current values, adding new entries, or taking options. In the WYSIWYG section, you need to 'point and click'. Any time you point and click in this section, you will be presented with a pop-up window, from which you can take a number of options to edit or add fields or text.

Lesson 5. Changing the subfile format

We need to edit field positions on the subfile, so take option 'F' against the subfile section on the overview screen to activate the subfile formatter tool.
We will use the detail section of the formatter to rearrange the fields on this screen.
Move Address Line 1 (CMADR1) on to line 3 (type 3 into the 'Lin' box). Move Address Line 2 (CMADR2) on to line 4, Address Line 3 (CMADR3) on to line 5, Address Line 4 (CMADR4) on to line 6, Address Line 5 (CMADR5) on to line 7, and finally Telephone (CMFONO), Salesman (CMSLMN), and Cumulative Sales (CMABSV) on to line 8.
The WYSIWYG section will now reflect your changes.
Notice, even though you specified Telephone, Salesman and Cumulative Sales to be on the same line, you did not need to specify the column positions. PractiCASE will automatically work out column positions based on the 'Fld.No' value. Lower numbered fields appear further to the left.
Hit F8 while in the formatter to see what the screen looks like so far.
Everything is aligned correctly, but is too far to the left for a window to go around.
Hit F3 to return to the formatter.
You can move everything over to the left or right with options 'L' and 'R'.
Type 'R' in the action box of the first line in the detail section, then overtype the 'From' field with '5'. Pressing Enter will move this line and everything after it in the detail section to the right by 5 characters.
Only the action control box has stayed in it's original position.
The action control box position is specified on the Subfile Specification Details window. To open up this window, hit F7.

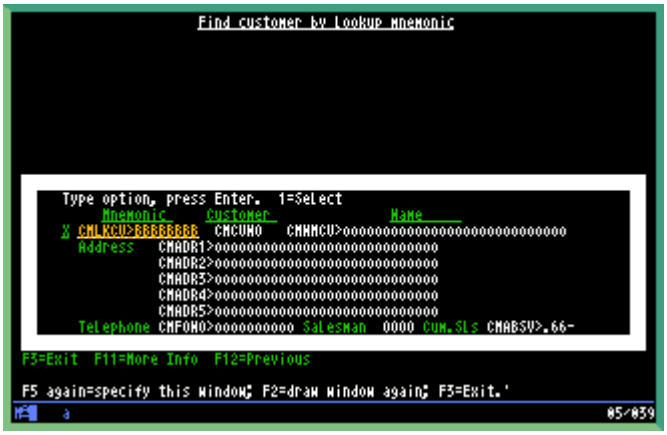


Change the 'Option Required?' column from 2 to 7 and hit Enter, then F3 to return to the formatter.
One last note before we leave this screen – fields that do not appear on the first line are on the fold. The fold is displayed only if F11 is pressed, unless the 'Sfl Drop' field at the top right of the screen is 'N', in which case fields on the fold are permanently displayed.
Now we will draw a window to finish the display. Hit F3 to return to overview.

The Window

Lesson 6. Creating a window

Activate the draw window tool by taking option ‘W’ in the non-subfile section.
You are prompted to position the cursor to the top left of the window, or edit the border style.
We want our window border to go lowlit when it is inactive, and highlit when it is active, hit F13 to maintain border style.
On the next window, select window border style ‘H’, and use a column border width of ‘2’.
Note – this is column border width. The top and bottom window borders are not affected by this number.
Hit ENTER to specify the window size.
When drawing a window, it is a good idea to keep an eye on the prompt at the bottom of the screen to avoid getting lost.
The prompt is currently requesting you to specify the top left corner of the window.
To do this, position the cursor where you want the top left to be. We want our top left to be at row 11, column 2, so position the cursor there and hit F5.
Now you are asked for the bottom right corner. Position the cursor at row 21, column 79 (note there is a marker denoting the top left corner of the window) and hit F5.
Once both positions are specified, the window is drawn. If you are happy with the window, hit F5 to accept it. If you are not happy with the window, hit F2 to remove and redraw it, and if you do not want a window at all you can hit F3 to cancel.

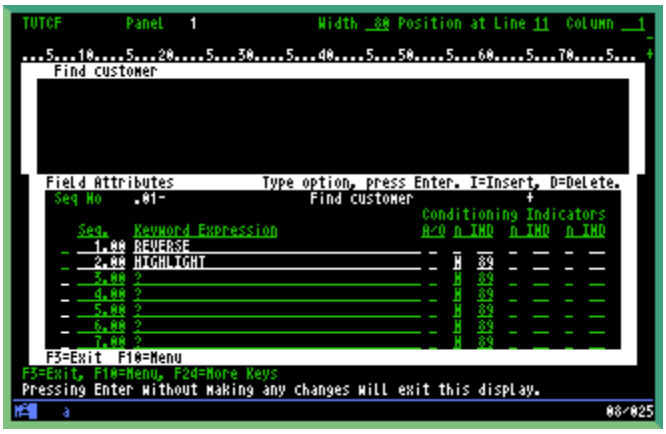


This window is O.K. for our program, so hit F5 again to accept this window.
One note of caution when using a Genesis window with a subfile – you should always make the window the full width of the screen, because unless an IBM window is used, a subfile will always clear the full width of the screen. E.g. if you have anything behind the window, it will be cleared between the top and bottom borders.
That’s it for the window, let’s see how the display looks.

Lesson 7. Changing the non-subfile format

You should now be back at the overview screen. Take option ‘S’ in either the panel or subfile section of the overview screen to view what your program’s display currently looks like.
You can see a screen heading of ‘Find customer by lookup mnemonic’ has been defaulted on the non-subfile section outside the window, and function key text is at the bottom of the screen, again outside the window.
We do not want either of these outside our window, so hit F3 to return to the overview screen, then type ‘F’ against the non-subfile to activate the non-subfile formatter.
You may not be able to see your window in the WYSIWYG section, because you are automatically positioned to be able to see the first line on the screen, which is the heading we are about to remove.

In the subfile section, take option ‘D’ to delete the heading ‘Find customer by lookup mnemonic’ on line 1.
Now position the WYSIWYG section to line 11 to see the window drawn earlier.
We do want the window to have a heading, but we want it to be on the window border, so in the detail section of the formatter, overtype the window top border text with ‘Find customer’ and hit ENTER.
You should now see this heading on the window.
Add function key text by rolling the detail section to the window bottom border, and overtype with ‘F3=Exit’, then hit ENTER.
You may have noticed the window border is displayed highlit. This is because when we selected ‘H’ighlight as our window border style, the attribute DSPATR(HI) was automatically attached to the window border.
You can review or edit display attributes by taking option ‘A’ against text or a field in the detail section of the formatter.



When you are finished, hit F3 to return to overview.
The function key text that is appearing outside the window is standard text that needs to be suppressed. To do this, hit F3 to go back to the List of Application Functions.
Now type ‘H’ in the action box of your program (TUTCF), and hit Enter.
Change the ‘Suppress Standard Command Keys (Exit and Previous)’ field to ‘P’ to keep the key functions, but suppress the text.
Once this change is made, go back to the overview screen.

Finishing Off

Lesson 8. Returning parameters

When the user selects a customer, we want to exit the program and pass the selection back to the calling program.
This must be done with subfile level 4GL because the action is specific to the subfile.
To enter subfile 4GL, take option ‘P’ in the subfile section of the overview screen.
PractiCASE has already defaulted the code we require -

1	RETURNPARM	RETURN

This code returns any input parameters and exits the program when subfile option ‘1’ is taken.

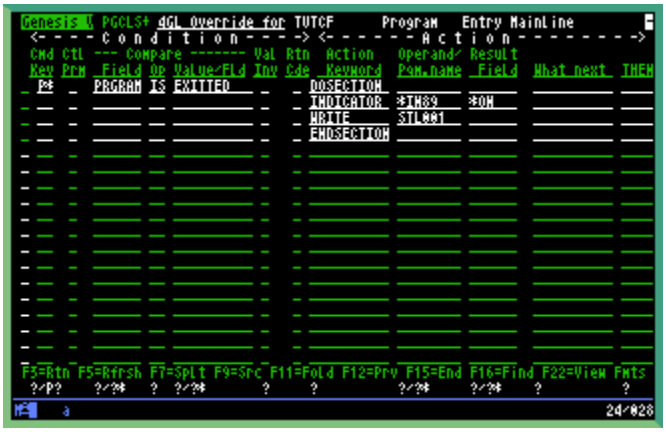
Lesson 9. Sending the window lowlit

Only one window – the currently active one should be highlit at any one time. This avoids confusion for a user, so they can easily tell which window they are working with.
This is achievable with our Genesis window because we specified the border style as ‘H’ighlight.
In order to send the window lowlit when we are calling another window or exitting the program, we need some 4GL to control the DSPATR(HI) display attribute.
Our program is not calling any other programs, so we will just need to do this as the program is exitting.
Any entry or exit logic should be done at program level 4GL, as it is not specific to any panel or subfile.
To enter program level 4GL, hit F20 from the overview screen.
PractiCASE 4GL uses ‘P*’ points to fit code in to specific places in the program cycle.

The following code will cause our window to go lowlit when the program exits -

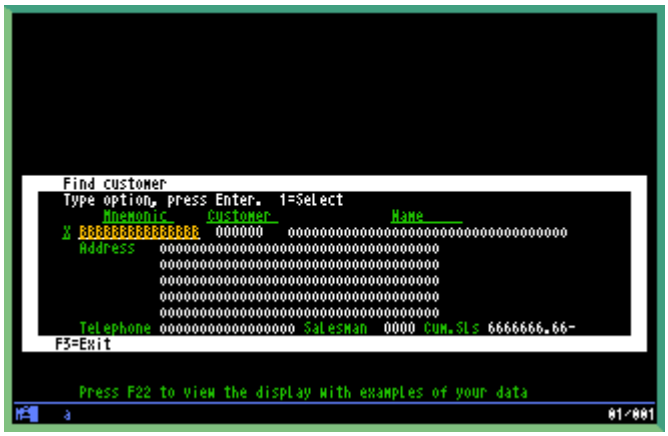
P*	PRGRAM	IS	EXITTED	DOSECTION
				INDICATOR *IN89 *ON
				WRITE STL001
				ENDSECTION

This code basically turns indicator 89 on which is the cancel highlight indicator for the window, then writes the panel trailer format STL001, which is the format the window is defined on.



Lesson 10. Generating the program

This program is now finished. Hit F3 twice to return to the 'List of Application Functions'.
You can take option 'V' to view how the screen will look here.



When you are ready to generate, the object generation tool can be activated by taking option 'G'. Option '3' will be defaulted against both the program (*PGM) and display file (*DSPF) - this option generates and compiles both objects, so hit ENTER to submit the job.
You can check your submitted jobs by hitting F10 to pull up the menu bar, then tab the cursor to 'Jobs' and hit ENTER.

Quick Reference

It is advisable to familiarize yourself with these keys and options to speed up navigation within PractiCASE.

Action	Key/Option	Screen
Activate menu bar	Function key 10	Anywhere within PractiCASE
Open program object selection menu	Option 'G' or 'S'	List of Application Functions
Generate source	Option '1' Option '1'	List of Application Functions Program Object Selection Menu
Compile source	Option '2' Option '2'	List of Application Functions Program Object Selection Menu
Generate & compile source	Option '3' Option '3'	List of Application Functions Program Object Selection Menu
Edit/review source	Option 'S'	Program Object Selection Menu
Edit/review map	Option 'M' Option 'M'	List of Application Functions Program Object Selection Menu
Edit/review program field list	Option 'L'	Section 1, 2 or 3 of Overview
Edit/review database field list	Option 'F'	Section 3 of Overview
Edit/review screen format	Option 'F'	Section 1 or 2 of Overview
Display screen format	Option 'V' Option 'S' Function key 8	List of Application Functions Section 1 or 2 of Overview Any screen formatter
Edit/review display attributes	Option 'A' Option 'A'	Program field list Any screen formatter
Draw a window	Option 'W'	Section 1 of Overview
Edit/review subfile details	Option 'X' Function key 7	Section 2 of Overview Subfile formatter
Edit./review database file keylist	Option 'K'	Section 3 of Overview
Edit/review program level 4GL	Option '4' Function key 20 Function key 20	List of Application Functions Program Object Selection Menu Overview
Edit/review panel level 4GL	Option 'P'	Section 1 of Overview
Edit/review subfile level 4GL	Option 'P'	Section 2 of Overview
Edit/review entry parameter list	Option '*' Function key 21 Function key 21 Function key 21	List of Application Functions Program Object Selection Menu Overview Any 4GL
Edit/review program header	Option 'H' Function key 11 Function key 19	List of Application Functions List of Application Functions Program Object Selection Menu