

Thoroughbred[®] Source-IV[™] Reference Manual



Version 8.7.1

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Published by:
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Somerset, New Jersey 08873-4153

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Document Number: SR8.7.1M001

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INTRODUCTION

Requirements

Operating System Support

UNIX, Linux, OpenVMS, and Windows

For specific information, please contact your Thoroughbred Sales Representative.

Thoroughbred Source-IV Overview

Thoroughbred Source-IV is a Source code management system that includes a context-sensitive editor, security, compilation facilities, Source locking, and Source code history management. Source-IV supports Source code for Thoroughbred Basic programs and Script-IV scripts. All of the Thoroughbred Basic and Script-IV Directives, Variables, and Functions are available. The OPENworkshop version of Source-IV supports Source code for methods.

Source-IV allows a developer to organize and group Source code into libraries. This feature makes it easy to maintain and manage Source code for product suites composed of multiple modules and for multiple releases of a product.

Thoroughbred Basic Program/Source-IV Comparison

To this point you are familiar with programming in Thoroughbred Basic Console Mode. Source-IV creates the program in Source text that can be edited but not executed. When you are ready to execute the program, compile the Source. Source-IV converts the text into Thoroughbred Basic program code. This procedure does not affect the Source text. Source-IV provides the ability, through importing, to convert existing Thoroughbred Basic programs into Source text. It is not necessary to re-key existing programs into Source-IV.

Changes made in the Source text do not appear in the Thoroughbred Basic program until you compile the Source.

Changes made directly to a Thoroughbred Basic program do not appear in the Source. If you make any changes to the program you must transfer these changes to the Source. If you perform importing, any program comments in your Source and any indentation is lost.

Note: You can use EDITF to cut/paste (F13) and save a change then copy (F12) that change into your Source.

Working with Existing Thoroughbred Basic Programs

If you have pre-existing Thoroughbred Basic programs that you want to maintain using Source-IV, you can use a procedure called importing. You create the text, edit it, compile it, and then execute it. For more information, see "Importing a Program" in this document.

Working with Existing Scripts

If you have pre-existing Script-IV Scripts that you want to maintain using Source-IV, you can use a procedure called importing. You create the text, edit it, compile it, and then execute it. For more information, see the section on **Importing**.

Source Text Editor

Source-IV uses a full-screen editor that includes features such as:

- Programming language and Dictionary-IV definition on-line help
- Split Line/Join Line
- Syntax Check
- Search/Replace
- Cut/Paste
- Undo
- Source commenting

Source-IV provides a full-screen editor

Using standard Thoroughbred keyboard conventions, you can create or modify programs as you would normal text. This provides many editing techniques that are unavailable with the EDIT directive. It provides a syntax checker, search and replace function, cut and paste function, plus a full on-line reference.

Security

Source-IV supports security for both the Source and the executables. Access to both the Source libraries and the Source modules can be restricted with passwords. At compile time, the executable programs can be encrypted and password protected.

Compilation Facilities

Source-IV supports several facilities for compiling Source allowing a developer to compile an entire library of Source, a range of Source, or an individual Source module that can be compiled directly from within the editor. In addition, Source-IV supports compile switches allowing the same Source code to generate different versions of the executable program.

Source Code Locking and Edit History

Source-IV allows a developer to lock individual Source modules preventing concurrent revisions to the Source code. Once locked, a complete edit history of all revisions is maintained. This allows a developer to review all changes and if necessary roll back the changes in order to revert to a prior version of the Source code.

Login

Thoroughbred Source-IV requires Thoroughbred Basic 8.1B2 or greater, and Dictionary-IV 5.1 or greater. If both of these products are not available on your machine, do not attempt to execute Source-IV.

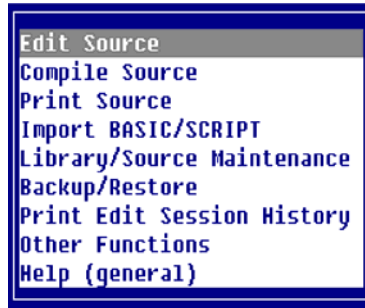
Thoroughbred Source-IV may be executed by one of the following methods:

- From any Thoroughbred Dictionary-IV menu:
- **Type** TS and press **Enter**, or press **F1** and select **Source-IV**, or press **F3** and select **Source-IV**.
- From the Thoroughbred Dictionary-IV Development Menu:
Select **1 Edit** and select **Source-IV**.

SOURCE-IV MAIN MENU – DICTIONARY-IV

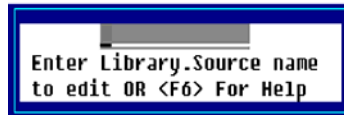
The following sections document the options available from the Source-IV Main Menu.

To access the Source-IV Main Menu press **F1** from any Dictionary-IV menu and select **Source-IV**, the system displays the following:



Edit Source

When you select **Edit Source** from the Source-IV Main Menu, the system displays the following:

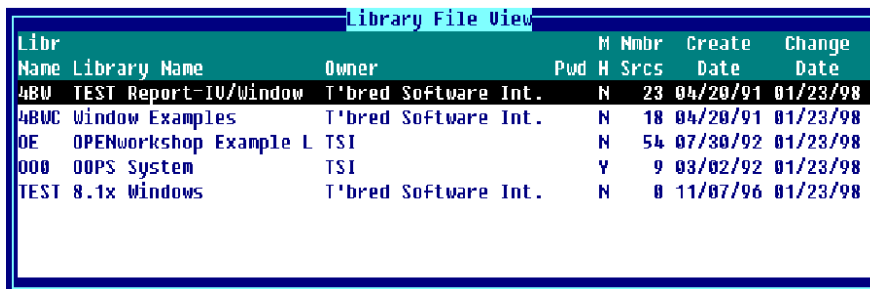


You can edit an existing Source module or create a new Source library and/or a new Source module. Enter the name of the Source that you wish to edit. The format of the entered name is as follows:

LIBRARY NAME (1-4 chars) . **SOURCE NAME** (1-8 chars)

Example: **MYLB.PROG1**

From the Library.Source window above you can press **F2** for a lookup of existing library names. The system displays the Library File View:



Libr	M	Nmbr	Create	Change	
Name	Library Name	Owner	Pwd H Srcs	Date	Date
4BW	TEST Report-IU/Window	T'bred Software Int.	N 23	04/20/91	01/23/98
4BWC	Window Examples	T'bred Software Int.	N 18	04/20/91	01/23/98
OE	OPENworkshop Example L	TSI	N 54	07/30/92	01/23/98
000	00PS System	TSI	Y 9	03/02/92	01/23/98
TEST	8.1x Windows	T'bred Software Int.	N 8	11/07/96	01/23/98

From the Library File View you can highlight the library you wish to select and press **Enter** to select it. The name of the library you selected is displayed in the Library.Source name window. If you enter a library name that does not exist the system displays the Create New Library Screen:

→ Create New Library Screen ←						
Libr	M Nbr	Create	Lst-Chng			
Name	Library Description	Owner	Pwd	H	Src	Date
QT						01/26/98

Libr Name

Type a library name (1-4 characters) any combination of letters, numbers or characters (except spaces ?/* [] @).

Press **F2** to view a list of libraries. The list contains all of the currently defined libraries. You may wish to use the **Up Arrow** and **Down Arrow** keys to scroll to the desired library name and press **Enter** to select that library.

Library Description

Type from 1 to 30 alphanumeric characters to describe the library being created. This is an optional field and may be left blank.

Owner

Type from 1 to 25 alphanumeric characters to define the owner of the library. This is an optional field and may be left blank.

Pwd

Type from 1 to 3 alphanumeric characters for the library password. library Passwords are used to control access to Source documents. Passwords may also be specified for each Source document. This is an optional field and may be left blank. Two reserved passwords are available to specify how the resultant executable object is to be compiled; non-protected (listable) or protected (non-listable).

NOL does not restrict Source access, but causes executable object to be compiled protected.

LON does not restrict Source access, but causes executable object to be compiled non-protected.

MH

Maintain Edit History gives the user the ability to undo changes made to a Source, and to also produce an Undo Change Notice that shows exactly what changes were made to a particular Source. Type **Y** or **N** in this field. For more information, see the section on **Source Locking and Edit History** in this document.

This indicates whether or not Source-IV should maintain the Edit Session History for all Source in this library.

Y Edit sessions will be maintained for all Source in this library. You will be required to Lock/Unlock Source in order to make changes.

N Edit sessions will not be maintained for all Source in this library. If this was previously set to Y and edit history exists when a Source is edited, you will be prompted to remove the edit history for that Source.

There are two types of records that are maintained by Source-IV when maintaining edit history:

- **Lock Intervals**
Records that are created every time a Source is locked. This record is used to separate each change to a Source.

- **Edit Session**
Records that contain the changes made each time the locked Source is saved from the editor. There can be an unlimited number of edit sessions for each lock interval. For more information, see Source Locking/Edit History.

Nmbr Srce

This field displays the number of Source documents in the specified library.

Create Date

This field displays the date the library was created.

Lst Chng Date

This field displays the date of the last change made to the specified library.

Once a library is selected you can press **F2** and the system displays the Source File View:

Source File View							
Source Name	Source Description	Pwd	T	S Create Date	Lst-Chng Date	LstCh Tim	Lst-Cmpl Date
OOBDATE	BASIC Date Method - 3GL Code	B		12/02/97	01/23/98	15:50	12/02/97
OOBDATE	Default date method	M		03/14/97	01/23/98	15:50	10/15/97
UTMNMEDN	Include For Print Mnemonic Us	5		03/17/93	01/23/98	15:36	
UTXCUSLS	REPORT-IV Example - Executing	1		03/17/93	01/23/98	15:36	03/25/94
UTXPCODE	REPORT-IV Example - PUBLIC SC	6		03/17/93	01/23/98	15:36	03/25/94
UTXREXEC	REPORT-IV Example - CONNECT R	1		07/19/93	01/23/98	15:36	03/25/94
UTXRMEH	Just a dummy method	S		09/20/95	01/23/98	15:36	09/20/95
UTXRMLTC	REPORT-IV Example - Multiple	1		05/27/93	01/23/98	15:36	09/19/95

From the Source File View you can edit a Source file by highlighting the Source file name and pressing **Enter**. If you enter a new Source name the system displays the Create New Source Screen:

> Create New Source Screen <							
Source Name	Source Description.....	Pwd	T	S Create Date	Lst-Chng Date	LstCh Tim	Lst-Cmpl Date
HSTEST				01/26/98	01/26/98	11:45	

Source Name

The Source name entered when creating a new Source can be from 1 to 8 characters any combination of letters, numbers or characters (except spaces ? / \ * [] @). The system will display the Create New Source Screen as shown above.

Source Description

Type from 1 to 40 alphanumeric characters to describe the Source being created. This is an optional field and may be left blank.

Pwd

Type from 1 to 3 alphanumeric characters for the Source password. Source passwords are used to control access to a Source document. Passwords may also be specified for each Source document. This is an optional field and may be left blank. Two reserved passwords are available to specify how the resultant executable object is to be compiled; non-protected (listable) or protected (non-listable).

NOL does not restrict Source access, but causes executable object to be compiled protected.

LON does not restrict Source access, but causes executable object to be compiled non-protected.

ST

This field allows you to specify the type of Source being created.

1-Primary (Script-IV)

Used as a starting point for processing.

2-Continuation (Script-IV)

Continuation of a primary or another continuation script.

3-Overlay (Script-IV)

Overlay to a primary, continuation, or another overlay script. It is a specialized type of continuation script that conserves memory and functions differently from a continuation script.

4-Pre/Post (Script-IV)

Used for pre/post processing in Dictionary-IV File Maintenance.

5-Copy (Script-IV/Basic)

When used in conjunction with the INCLUDE command, this Source can serve to save time and avoid duplication when writing scripts or Thoroughbred Basic programs.

6-Public (Script-IV)

Independent routing to a primary, continuation, overlay, or another public script. Having an independent data environment, the public script does not belong to a script set or have a parent script.

B-BASIC (Basic)

A Thoroughbred Basic program.

M-Basic Method (OPENworkshop only)

A 3GL program.

P-PPS Pre/Post

Used for pre/post processing in Public Programming Services (8INPUT).

S-Script-IV Method (OPENworkshop only)

An OPENworkshop Script-IV Method.

U-Utility (Script-IV)

Same as a primary script, except that on startup:

The screen is not cleared.

The 3GL data environment is not initialized.

Open files are not closed; if run from a script be sure to close all open links before executing (CLOSE ALL).

Create Date

This field displays the date the specified Source was created.

Lst-Chg Date

This field displays the date the last change was made to the specified Source.

LstCh Tim

This field displays the time the last change was made to the specified Source.

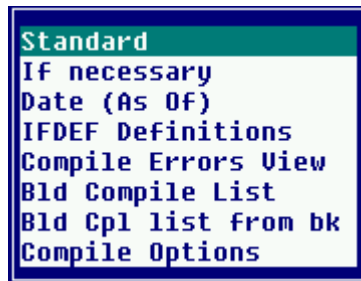
Lst-Cmpl Date

This field displays the date the specified Source was last compiled.

Once a Library.Source name is entered and you press **Enter** from the input field the Source Editor is invoked. If you entered an existing Source module, the Source is displayed. If you are creating a new Source module, you will have either a blank editor screen or a Source template. Templates are available for scripts and methods but not basic Source. For more information, see the **Source Editor Features** section.

Compile Source

To access the compile options select **Compile Source** from the Source-IV Main Menu. The system displays the following pop-up menu:



Standard

When you select **Standard** the system allows the standard compile options to be presented. Single or multiple Source document(s) can be compiled.

If necessary

When you select **If necessary** only Source documents that have been changed since their last compile date/time will be compiled. The option to select a single or multiple Source document(s) will be given.

In addition to checking the last changed date of the Source, this option also searches the Source in the selected range and compares the changed date of any definitions (i.e. Formats, Screens, etc.) or INCLUDE Source used, with the compile date. Any Source which uses a definition or INCLUDE Source with a more recent change date than the compile date is compiled.

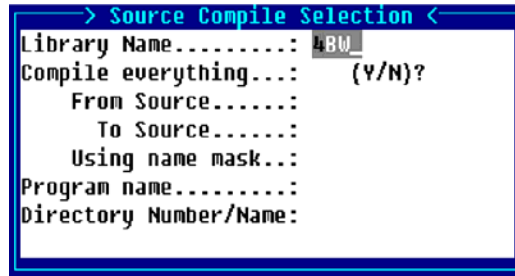
Date (As Of)

When you select **Date (As Of)** the system displays the following:



You can then enter the date (mmddyy) that will be used to compare the Source documents last change date. If the last change date is less than or equal to the date entered, then the Source document will be compiled. Pressing **Enter** will apply today's date. Only Source documents that have been changed on or after the date specified will be compiled.

The following input window appears if you select **Standard** or **If necessary** from the pop-up menu. The same input window appears when **Date (As Of)** is selected and you type the date and press **Enter**:



Library Name

This is a name that is used to specify a library in which Source documents are kept. The library name can be from 1 to 4 characters long and can consist of any combination of letters, numbers, or characters except (spaces ?/\ * [] @).

At this field you can press **F2** to display a view of library names. This list contains all of the currently defined libraries. The **Up Arrow** and **Down Arrow** keys can be used to scroll to the desired library name. Pressing **Enter** will select that library name. The last library name used by the editor will be automatically displayed in this field. Pressing **Enter** will select that library.

Compile everything?

Y Every Source in the library will be selected for compile.

N An option to enter a range or a single Source for compile will be given.

From Source

Enter the name of the first Source document. If you want to start with the first Source document in the library, press **Enter**.

At this field you can press **F2** to display a view of Source documents in the selected library. The **Up Arrow** and **Down Arrow** keys can be used to scroll to the desired Source document. Pressing **Enter** will select that Source document.

To Source

Enter the name of the last Source document to be selected. If you pressed **Enter** on the From Source field and you want to end with the last Source document in the library, press **Enter**. Otherwise pressing **Enter** will apply the same name as the name entered in the From Source field.

At this field you can press **F2** to display a view of Source documents in the selected library. The **Up Arrow** and **Down Arrow** keys can be used to scroll to the desired Source document. Pressing **Enter** will select that Source document.

Using name mask

A mask allows selection of similar names without specifying each individual name. The mask specifies which part of the name must match exactly and question marks are used to indicate that any characters in the same position as the question mark are allowed.

Examples:

mask ABC??? (selects names that begin with ABC)

mask 12??ab (selects names starting with 12 and ending with ab)

To select names:

AAA123 AAA456 AAArty AAABCD AAAQWE

Use mask: AAA???

To select names:

12TT34 RTTTTT TTTT aaTT 1TTT23

Use mask: ??TT??

Program name

Contains the name of the executable object file that is to be created by the compile. The default name is the Source document name.

Be sure to avoid characters, which may be restricted on some systems and invalid as file names (spaces ? / \ * [] @).

If an executable object file name is found that matches the Source document name, this field will automatically be filled in and control will go directly to the **Correct?** confirmation.

Directory Number/Name

Enter the number or the name of the directory into which the executable object file(s) will be placed. This information will not be requested if a version of the executable object already exists on an enabled directory.

Examples:

1

IDL4

Utils

Note: The default directory will be the directory where the dictionary (IDDBD) is located.

IFDEF Definitions

When you select **IFDEF Definitions** the system displays the Compile IFDEF Definition View:

Compile IFDEF Definition View				
Opr	Sq	IFDEF Name	IFDEF Description	Y-On N-Off
TSI	00	TEST NUMBER 3	TESTING SEQUENCE NUMBERS	N
TSI	01	TAGA	Tag A	N
TSI	02	TAGA2	Tag TEST	N
TSI	08	TEST	TESTING SEQUENCE NUMBERS	N

IFDEF-OPER-CODE(3) {3} <CR>=D

Note: Maintenance can be performed within the view, for more information see the Dictionary-IV User Guide.

This selection allows the definition of IFDEF values, which are used for conditional compiling.

The input fields in the Compile IFDEF Definition editing screen are as follows:

Opr Cde

The system displays the operator code of the IFDEF Definition selected.

Sq Nb

This is the sequence number used to assign a unique value to an IFDEF Definition. This value can have a range from 0 to 99.

IFDEF Name

This field contains the name of the IFDEF Definition. This is the name that will be specified in the Source document. This name can be from 1 to 20 characters.

IFDEF Description

This field contains a description of the IFDEF Definition. This field is used for documentation purposes only.

ON Y/N

This field defines whether or not the IFDEF Definition is active (Y) or inactive (N) when Source compilation is performed.

IFDEF definitions are optional compile switches that can be incorporated in Source code to control which Source code statements or segments are to be included in the executable program. The IFDEF Definition option on the menu allows you to create, delete, enable or disable an IFDEF Definition. The definitions are defined by operator code and are automatically assigned a sequence number. You then enter the IFDEF name. This is the switch or tag that is used in Source code. You also supply a description. You can then either turn a switch on or off.

Example:

```
#IF TAGA
LET A$="A"
#ELSE
LET A$="B"
#ENDIF
```

In the above example, if the IFDEF named TAGA which was created in the IFDEF Definition screen is enabled then the executable program will contain LET A\$="A". If TAGA is not enabled, then the executable program will contain LET A\$="B".

The Compile IFDEF Definition View displays the IFDEF Definitions based on the operator at login time. To edit the IFDEF Definition sequence number, name, description, or ON Y/N fields, highlight the IFDEF Name from the Compile IFDEF Definition View and press **Enter**.

To add a new IFDEF Definition press **Line Insert** from the Compile IFDEF Definition View the system allows you to enter a new IFDEF Definition.

The Compile IFDEF Definition View displays the operator code, sequence number, IFDEF Name, IFDEF Description and the ON Y/N (active or inactive) fields.

Compile Errors View

This selection displays the Library.Source name, statement number and the syntax error description for each compile error encountered.

Bld Compile List

The system prompts:

Enter the compile list file name: 8SCp~~xxx~~:

If the compile list file name already exists the system prompts:

Compile list already exists. Do you want to Append (Y/N)?

Enter **Y** to append or **N** to recreate the compile list.

The system then prompts:

Enter library name.

Enter a Source-IV library name.

The source modules in that library are added to the compile list file. The system then brings you back to the **Enter Library Name** prompt where you can enter another Source-IV library name or you can press **F4** to go back to the **Bld Compile List** option on the Source-IV Compile Menu.

Bld Cpl list from bk

The system prompts:

Enter name for the backup file 8SCbk~~xxx~~:

The system then prompts:

Enter the compile list file name 8SCp~~xxx~~:

If the compile list file name already exists the system prompts:

Compile list already exists. Do you want to Append (Y/N)?

Enter **Y** to append or **N** to recreate the compile list.

This creates a compile list file based on the contents of a Source-IV backup file. If you have a Source-IV backup file restored this allows you to compile those modules.

Compile Options

Source-IV has been enhanced to erase all copies of a compiled program accessible from the IPL DEV lines. This feature is enabled by default. It can be modified at the operator code level. From the main Source-IV menu select Compile Menu then select Compile Options. To disable this feature set Erase Programs to "N". If this parameter is not set the default value of "Y" will be applied when source is compiled.

The system displays the following window:

```
→ Source-IV - Compile Options ←

Operator Code: tsi IDOL-IV Default Operator

Display Compile Data: Y
Display Compile Errors: Y
Error message wait time: 15
Erase Programs: Y
```

Make your selections for how to display your compile list and press **Enter** to accept these.

Print Source

This selection allows you to print one or more Source document(s) to a selected printer. When you select **Print Source** the system displays the Library File View:

Library File View							
Libr	Name	Library Name	Owner	Pwd	M Nbr	Create Date	Change Date
4BW	TEST	Report-IV/Window	T'bred Software Int.	N	23	04/20/91	01/23/98
4BVC	Window	Examples	T'bred Software Int.	N	18	04/20/91	01/23/98
0E	OPENworkshop	Example L	TSI	N	54	07/30/92	01/23/98
000	OOPS	System	TSI	Y	9	03/02/92	01/23/98
TEST	8.1x	Windows	T'bred Software Int.	N	8	11/07/96	01/23/98

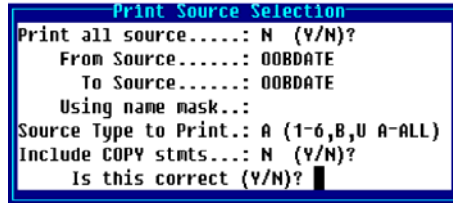
From the Library File View press **F1** to display the Source File View:

Source File View							
Source Name	Source Description	Pwd	T	S	Create Date	Lst-Chng Date	Lst-Chg Lst-Cmpl Date
00BDATE	BASIC Date Method - 3GL Code	B			12/02/97	01/23/98	15:50 12/02/97
00UDATE	Default date method	M			03/14/97	01/23/98	15:50 10/15/97
UTMNMEN	Include For Print Mnemonic Us	5			03/17/93	01/23/98	15:36
UTXCUSL	REPORT-IV Example - Executing	1			03/17/93	01/23/98	15:36 03/25/94
UTXPCOD	REPORT-IV Example - PUBLIC SC	6			03/17/93	01/23/98	15:36 03/25/94
UTXREXC	REPORT-IV Example - CONNECT R	1			07/19/93	01/23/98	15:36 03/25/94
UTXRMEH	Just a dummy method	S			09/20/95	01/23/98	15:36 09/20/95
UTXRMLT	REPORT-IV Example - Multiple	1			05/27/93	01/23/98	15:36 09/19/95

From the Source File View press **F3** to print. The system prompts:

Select Printer (xx)_____

Once a printer is selected the system displays the Print Source Selection Window:



You have the option to print by Source Type. Also, you have the option to include Source text contained in copied (COPY or INCLUDE directives) modules. The system will print Source located in the library selected from the Library File View.

Print all source?

Y Every Source in the selected library will be printed.

N Option to enter a range or a single Source to be printed will be given.

From Source

Enter the name of the first Source document. If you want to start with the first Source document in the library, press **Enter**.

At this field you can press **F2** to display a view of Source documents in the selected library. The **Up Arrow** and **Down Arrow** keys can be used to scroll to the desired Source document name. Pressing **Enter** will select the Source name.

To Source

Enter the name of the last Source document to be selected. If you pressed **Enter** on the From Source field and you want to end with the last Source document in the library, press **Enter**. Otherwise pressing **Enter** will apply the same name as the name entered in the From Source field.

At this field you can press **F2** to display a view of Source documents in the selected library. The **Up Arrow** and **Down Arrow** keys can be used to scroll to the desired Source document name. Pressing **Enter** will select that Source name.

Using name mask

A mask allows selection of similar names without specifying each individual name. The mask specifies which part of the name must match exactly and question marks are used to indicate that any characters in the same position as the question mark are allowed.

Examples:

mask ABC??? (selects names that begin with ABC)
mask 12??ab (selects names starting with 12 and
ending with ab)

To select names:
AAA123 AAA456 AAArty AAABCD AAAQWE

Use mask: AAA???

To select names:
12TT34 RTTTTT TTTT aaTT 1TTT23

Use mask: ??TT??

Source Type to Print

This allows you to specify which type of Source you wish to print.

Type:

- 1** Primary (Script-IV or Basic)
- 2** Continuation (Script-IV only)
- 3** Overlay (Script-IV only)
- 4** FM Pre/Post (Script-IV only)
- 5** Copy (Script-IV or Basic)
- 6** Pubicl (Script-IV only)
- B** Basic program (Basic only)
- M** Basic Method (OPENworkshop only)
- P** PPS Pre/Post (Public Programming Services)
- S** Script-IV Method (OPENworkshop only)
- U** Utility (Script-IV only)
- A** Print all types above.

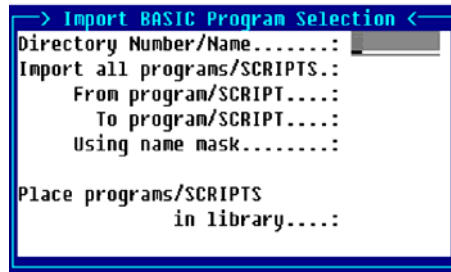
Include COPY stmts?

This allows you to specify whether or not you wish to include the Source contained in COPY/INCLUDE directives along with the Source document being printed.

- Y** Text contained in COPY/INCLUDE directives will be printed as part of the Source document.
- N** Text contained in COPY/INCLUDE directives will not be printed as part of the Source document.

Import BASIC/SCRIPT

This selection allows Thoroughbred BASIC/SCRIPT programs from any configured disk directory or dictionary to be imported into Source-IV. You may specify a single or a range of programs to import, and into which Source-IV library these programs will be imported. When **Import BASIC/SCRIPT** is selected from the Source-IV Main Menu the system displays the Import BASIC Program Selection window:



Directory Number/Name

Enter the number or the name of the directory from which Thoroughbred Basic programs will be imported into Source-IV. Entering **IDDBD** will import SCRIPTS from the data dictionary.

Examples:

1
IDL4
utils
IDDBD

Import all programs/SCRIPTS?

Y All programs in the selected directory or all SCRIPTS from IDDBD will be imported.

N Allows program(s) or SCRIPT(s) to be imported using From and To values, and a selection mask.

From program/SCRIPT

For a range of programs, enter the name of the first program to be imported into Source-IV. If you want to start with the very first program in the directory, press **Enter**.

For a range of SCRIPTS, enter the library name as well as SCRIPT name (llnnnnnn).

If converting SCRIPTS, press **F2** to display a view of script names. The **Up Arrow** and **Down Arrow** keys can be used to scroll to the desired script name, pressing **Enter** will select that script name.

To program/SCRIPT

For a range of programs, enter the name of the last program to be imported into Source-IV. If the **Enter** key was pressed on the From program/SCRIPT field and you want to end with the last program/script name in the library, press **Enter**. Otherwise the program/SCRIPT name entered in the From program/SCRIPT field will also be applied to the To program/SCRIPT field.

For a range of SCRIPTS, enter the library name as well as SCRIPT name (llnnnnnn).

If converting SCRIPTS, press **F2** to display a view of script names. The **Up Arrow** and **Down Arrow** keys can be used to scroll to the desired script name, pressing **Enter** will select the script name.

Using name mask

A mask allows selection of similar names without specifying each individual name. The mask specifies which part of the name must match exactly and question marks are used to indicate that any characters in the same position as the question mark are allowed.

Examples:

mask ABC??? (selects names that begin with ABC)
mask 12??ab (selects names starting with 12 and ending with ab)

To select names:
AAA123 AAA456 AAArty AAABCD AAAQWE

Use mask: AAA???

To select names:
12TT34 RTTTTT TTTT aaTT 1TTT23

Use mask: ??TT??

Place programs/SCRIPTS in library

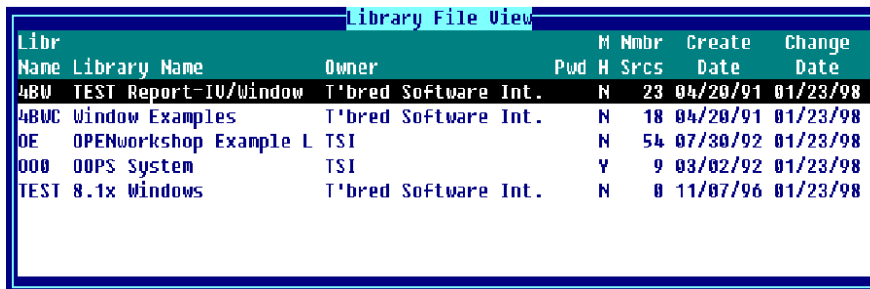
This is a name of a library into which the programs/SCRIPTS will be imported. If the specified library does not exist, the library create screen will be displayed and you will be allowed to create the library.

The library name can be from 1 to 4 characters long and can consist of any combination of letters, numbers, or characters except (spaces ?/\ * [] @).

At this field you can press **F2** to display a view of library names. This list contains all of the currently defined libraries. The **Up Arrow** and **Down Arrow** keys can be used to scroll to the desired library name. Pressing **Enter** will select that library name.

Library/Source Maintenance

When you select the **Library/Source Maintenance** option from the Source-IV Main Menu the system displays the Library File View:



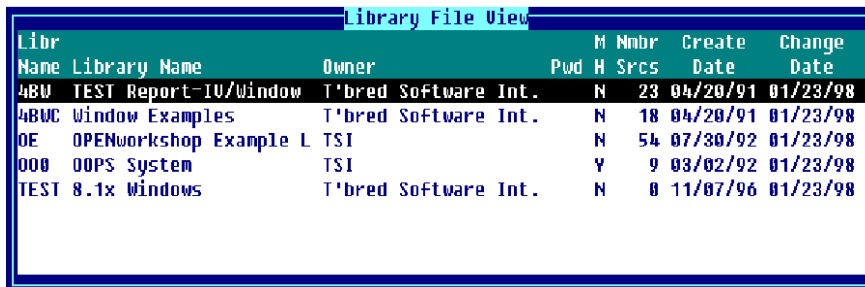
Libr	Name	Library Name	Owner	Pwd	H	Srcs	M	Nmbr	Create Date	Change Date
4BV	TEST	Report-IV/Window	T'bred Software Int.	N	23	04/20/91	01/23/98			
4BVC	Window	Examples	T'bred Software Int.	N	18	04/20/91	01/23/98			
0E	OPENworkshop	Example L	TSI	N	54	07/30/92	01/23/98			
000	00PS	System	TSI	Y	9	03/02/92	01/23/98			
TEST	8.1x	Windows	T'bred Software Int.	N	0	11/07/96	01/23/98			

Keys available in the Library File View:

- Enter** Selects the library or Source document.
- Shft-Ins** Adds a library or Source document.
- Shft-Del** Deletes a library or Source document.
- Up/Down Arrow** Moves the lightbar up/down one record.
- Page Up/Down** Moves up/down one full window.
- Home** Go to the top/bottom of the file view.
- F1** Displays the Source File View.
- F3** Print.
- F4** End.
- F7** Undo change.
- F8** Search/Replace.
- F10** Enter Goto value.
- F16** Print hard copy.

Library Maintenance

Library Maintenance is performed from the Library File View.



Libr	Name	Library Name	Owner	Pwd	M	Nmbr	Srcs	Create Date	Change Date
4BV	TEST	Report-IO/Window	T'bred Software Int.	N	23	04/20/91	01/23/98		
4BVC	Window	Examples	T'bred Software Int.	N	18	04/20/91	01/23/98		
0E	OPENworkshop	Example L	TSI	N	54	07/30/92	01/23/98		
000	OOPS	System	TSI	Y	9	03/02/92	01/23/98		
TEST	8.1x	Windows	T'bred Software Int.	N	0	11/07/96	01/23/98		

Add

To add a library press **Line Insert** from the Library File View. The system inserts a blank line. Enter a library name from one through four characters long. If you enter a name and the library does not exist, you will be allowed to create the library automatically.

If you enter a new name, you are adding a new library. If you enter an existing name, the system will display the following message:

A record already exists with the key used to define the record being added to the file. Add request will be denied.

Change

To make changes to a library from the Library File View, select the library and highlight the field to be changed, type over the information displayed. If you make changes to the library name the system displays a window showing the library name and the name the library is being changed to. The system then displays a pop-up menu with the option to Cancel, Copy, or Rename.

Delete

To delete a library from the Library File View, highlight the library name and press **Line Delete**. The following prompt is displayed:

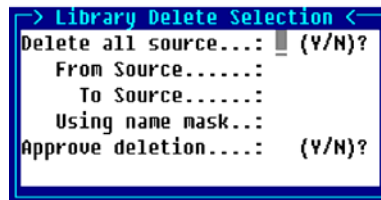
Delete Record?

Select one of the following:

Y Deletes the library.

N Keeps the library.

If you are deleting a library that has Source definitions defined the system displays the Library Delete Selection window:



Delete all source?

Y All Source documents in the specified library will be deleted

N A range and selection mask option will be deleted.

From Source

Enter the name of the first Source document. If you want to start with the first Source document in the library, press **Enter**.

At this field you can press **F2** to display a view of Source documents in the selected library. The **Up Arrow** and **Down Arrow** keys can be used to scroll to the desired Source document name. Pressing **Enter** will select the Source name.

To Source

Enter the name of the last Source document to be selected. If you pressed **Enter** on the From Source field and you want to end with the last Source document in the library, press **Enter**. Otherwise pressing **Enter** will apply the same name as the name entered in the From Source field.

At this field you can press **F2** to display a view of Source documents in the selected library. The **Up Arrow** and **Down Arrow** keys can be used to scroll to the desired Source document name. Pressing **Enter** will select that Source name.

Using name mask

A mask allows selection of similar names without specifying each individual name. The mask specifies which part of the name must match exactly and question marks are used to indicate that any characters in the same position as the question mark are allowed.

Examples:

mask ABC??? (selects names that begin with ABC)

mask 12??ab (selects names starting with 12 and ending with ab)

To select names:

AAA123 AAA456 AAArty AAABCD AAAQWE

Use mask: AAA???

To select names:

12TT34 RTTTTT TTTT aaTT 1TTT23

Use mask: ??TT??

Approve deletion?

Y Approval is required before Source document is deleted.

N Source is deleted without approval.

Rename

To rename a library from the view, highlight the library name and type the new name over the existing name. The system will display a window showing the library name and the name the library is being renamed to. The system also displays a pop-up menu with the option to Cancel, Copy, or Rename. Select **Rename** to rename the library.

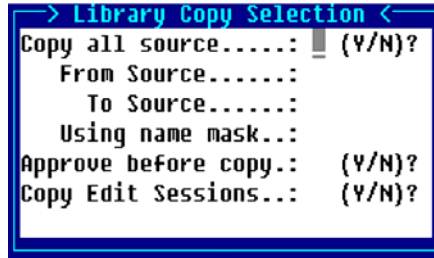
Copy

To copy a library, select the definition name from the view and type the name to copy to over the existing text. The system will display a window showing the library name and the name the library is being copied to. The system also displays a pop-up menu with the option to Cancel, Copy, or Rename. Selecting **Copy** will copy the library with the new name and the original library will still exist. If you copy to a library that does not exist the system will display the following message:

Library has not been created yet, RETURN to continue.

You must add the library name in the Library File View as described above in the **Add** section.

If the library exists the system displays the Library Copy Selection window:



Copy all source?

Y All Source documents in the specified library will be copied.

N A range and selection mask option will be copied.

From Source

Enter the name of the first Source document. If you want to start with the first Source document in the library, press **Enter**.

At this field you can press **F2** to display a view of Source documents in the selected library. The **Up Arrow** and **Down Arrow** keys can be used to scroll to the desired Source document name. Pressing **Enter** will select that Source name.

To Source

Enter the name of the last Source document to be selected. If you pressed **Enter** on the From Source field and you want to end with the last Source document in the library, press **Enter**. Otherwise pressing **Enter** will apply the same name as the name entered in the From Source field.

At this field you can press **F2** to display a view of Source documents in the selected library. The **Up Arrow** and **Down Arrow** keys can be used to scroll to the desired Source document name. Pressing **Enter** will select the Source name.

Using name mask

A mask allows selection of similar names without specifying each individual name. The mask specifies which part of the name must match exactly and question marks are used to indicate that any characters in the same position as the question mark are allowed.

Examples:

mask ABC??? (selects names that begin with ABC)
mask 12??ab (selects names starting with 12 and ending with ab)

To select names:
AAA123 AAA456 AAArty AAABCD AAAQWE

Use mask: AAA???

To select names:
12TT34 RTTTTT TTTT aaTT 1TTT23

Use mask: ??TT??

Approve before copy?

Y Approval is required before Source document is copied.

N Source is copied without approval.

Copy Edit Sessions?

Y Edit session that exists for a Source will be copied to the destination library, replacing any editing sessions that already exist.

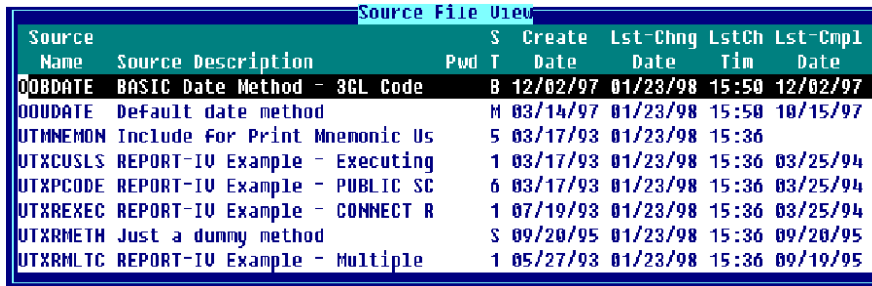
When copying Source to another library, you have the option to copy the edit history. However, if you intend to copy the Source back to the original library and you had not copied the edit history along with the Source, the edit history in the original library will be deleted (or replaced if the destination library had the Maintain Edit History flag turned on). In cases where you intend to copy the Source back to the original library, you should answer **Y** to this question.

N Edit session history for this Source will not be copied.

Note: The source library 'Copy' option returns to the selection screen rather than to the source view only when a range of source has been selected for copy. When all sources are selected, the copy will return to the source view.

Source Maintenance

Press **F1** from the Library File View to display the Source File View:



Source Name	Source Description	Pwd	S	T	Create Date	Lst-Chng Date	LstCh Tim	Lst-Cmpl Date
OOBDATE	BASIC Date Method - 3GL Code	B			12/02/97	01/23/98	15:50	12/02/97
OOBDATE	Default date method	M			03/14/97	01/23/98	15:50	10/15/97
UTMNEMON	Include for Print Mnemonic Us	5			03/17/93	01/23/98	15:36	
UTXCUSLS	REPORT-IV Example - Executing	1			03/17/93	01/23/98	15:36	03/25/94
UTXPCODE	REPORT-IV Example - PUBLIC SC	6			03/17/93	01/23/98	15:36	03/25/94
UTXREXEC	REPORT-IV Example - CONNECT R	1			07/19/93	01/23/98	15:36	03/25/94
UTXRMEH	Just a dummy method	S			09/20/95	01/23/98	15:36	09/20/95
UTXRMLTC	REPORT-IV Example - Multiple	1			05/27/93	01/23/98	15:36	09/19/95

Add

To add a Source definition press **Line Insert** from the Source File View. The system inserts a blank line. Enter a Source name from one through eight characters long. If you enter a name and the library does not exist, you will be allowed to create the library automatically.

If you enter a new name, you are adding a new definition. If you enter an existing name, the system will display the following message:

A record already exists with the key used to define the record being added to the file. Add request will be denied.

Change

To make changes to a Source definition from the view, select the Source definition and highlight the field to be changed, type over the information displayed. If you make changes to the Source definition name the system displays a window showing the definition name and the name the definition is being changed to. The system then displays a pop-up menu with the option to Cancel, Copy, or Rename.

To make changes to the Source definition press **F1** to edit, make the changes and press **F4** to save the definition or changes to the definition. The following prompt is displayed:

Save report modifications?

Select one of the following:

Y Saves the Source definition.

N Does not save the Source definition.

Delete

To delete a definition from the view, highlight the Source definition name and press **Line Delete**. The following prompt is displayed:

Delete Record?

Select one of the following:

Y Deletes the Source definition.

N Keeps the Source definition.

Rename

To rename a Source definition from the view, highlight the definition name and type the new name over the existing name. The system will display a window showing the definition name and the name the definition is being renamed to. The system also displays a pop-up menu with the option to Cancel, Copy, or Rename. Select **Rename** to rename the definition.

When you rename a definition, it does not have to remain in the same library. If you rename it to a library that does not exist, you can create the library automatically.

Copy

To copy a definition, select the definition name from the view and type the name to copy to over the existing text. The system will display a window showing the definition name and the name the definition is being copied to. The system also displays a pop-up menu with the option to Cancel, Copy, or Rename. Select **Copy** to copy the definition with the new name and the original definition will still exist. The system will prompt:

Do you want to copy the edit session history?

Select one of the following:

Y Will copy the edit session history.

N Will copy only the Source.

When you copy the definition, it does not have to remain in the same library. If you copy it to a library that does not exist, you can create the library automatically.

Backup/Restore

This selection allows you to backup Source documents and edit session history from libraries into a specified backup file. You can edit (add/delete) the contents of an existing backup file. You may also restore Source documents and edit session history from a specified backup file back into libraries.

Note: The Source Backup/Restore has been modified to convert the source dates as needed to be compatible with previous versions. If a source backup is done in 8.4.2 and restored on a pre 8.4.2 release, the source dates will be converted to their old format.

The naming conventions for backup files are:

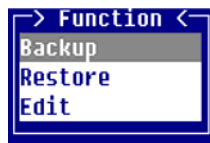
8SCbknnn (Source backup file name)

nnn is a user-supplied suffix. This suffix can be your initials or an application code, etc.

8SCUbknnn (Edit Session History backup file)

nnn is a user-supplied suffix that will be the same as the suffix for the Source backup file.

When you select **Backup/Restore** from the Source-IV Main Menu the system displays the following:



Backup

When you select **Backup** the system prompts:

Enter name for backup file 8SCbk: _____

Enter the three-character suffix that will be added to "8SCbk". The backup file name will be "8SCbknnn". This will be the file name used when a backup, restore, or edit operation is done. Also, when the backup is placed on or recovered from media the file name will be 8SCbknnn. You can create a new bk file by entering a name that does not already exist.

Note: If you are backing up edit history you will need to move both the 8SCbknnn and 8SCUBknnn files to the media in order to properly recover Source and edit history.

If you enter the name of an existing file the system prompts:

Backup file already exists. Do you want to Append?

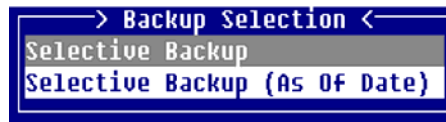
Select one of the following:

Y The backup will be added to the existing bk file, replacing any Source modules, which are already in the bk file.

N The bk file is cleared and a new file is created with the new data.

The date and time the backup file was created is displayed.

The system displays the Backup Selection window:



Selective Backup

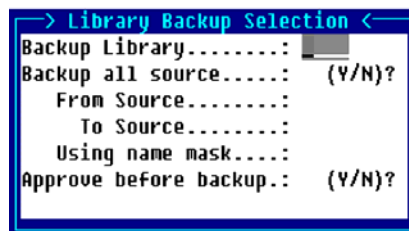
This selection allows you to specify single or multiple Source documents from a specified library for backup.

Selective Backup (As Of Date)

This selection allows you to select single or multiple Source documents from a specified library and compare the last changed date with a date that you will enter. If the Source documents have been changed on or after the date entered, the Source document will be written to the backup file. This selection allows you to specify single or multiple Source documents from a specified library for backup.

The backup file may have documents from more than one library. The backup file can then be placed on tape or disk for recovery whenever needed.

When you select **Selective Backup** or **Selective Backup (As Of Date)** the system displays the Library Backup Selection window:



Backup Library

Enter up to 4 characters any combination of letters, numbers, or characters except (spaces ? / \ * [] @) for the library name that is used to specify a library in which Source documents are kept.

Press **F2** for a view of currently defined library names. You may wish to use the **Up Arrow** and **Down Arrow** keys to scroll to the desired library name and press **Enter** to select that library.

The last library used by the editor will be automatically displayed in this field. Pressing **Enter** will select that library.

Backup all source?

Y All Source documents in the selected library will be selected for backup.

N Enter a range or a single Source document for backup.

From Source

Enter the name of the first Source document. If you want to start with the first Source document in the library, press **Enter**.

Press **F2** to display a view of Source documents in the selected library. The **Up Arrow** and **Down Arrow** keys can be used to scroll to the desired Source document name. Pressing **Enter** will select the Source name.

To Source

Enter the name of the last Source document to be selected. If **Enter** was pressed on the From Source field and you want to end with the last Source document in the library, press **Enter**. Otherwise pressing **Enter** will apply the same name as the name entered in the From Source field.

Press **F2** to display a view of Source documents in the selected library. The **Up Arrow** and **Down Arrow** keys can be used to scroll to the desired Source document name. Pressing **Enter** will select that Source name.

Using name mask

A mask allows selection of similar names without specifying each individual name. The mask specifies which part of the name must match exactly and question marks are used to indicate that any characters in the same position as the question mark are allowed.

Examples:

mask ABC??? (selects names that begin with ABC) mask 12??ab (selects names starting with 12 and ending with ab)

To select names:

AAA123 AAA456 AAArty AAABCD AAAQWE

Use mask: AAA???

To select names:

12TT34 RTTTTT TTTT aaTT 1TTT23

Use mask: ??TT??

Approve before backup?

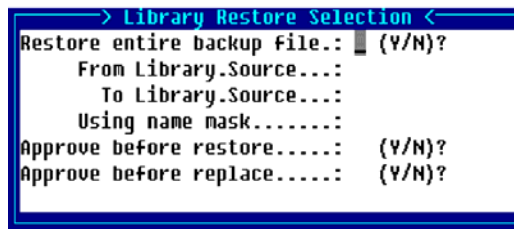
Y Approval is required before Source is backed up. The system will prompt for each file:

Are you sure you want to backup?

N Source is backed up without approval.

Restore

This selection allows you to restore Source documents and edit session histories from a specified backup file back into libraries. When you select **Restore** the system displays the Library Restore Selection window:



Restore entire backup file?

Y Every Source in the backup file selected will be restored into its associated library.

N Enter a range or a single Source for restore.

From Library.Source

For a range of Source, enter the name of the library and a period '.' followed by the first Source to be selected for restoration. If you want to start with the very first Source in the first library, press **Enter**.

Press **F2** to display the Source File View of the selected backup file. This list contains all of the Source within the selected backup file. You may wish to use the **Up Arrow** and **Down Arrow** keys to scroll to the desired Library.Source name. Pressing **Enter** will select that Library.Source name.

To Library.Source

For a range of Source, enter the name of the library and a period '.' followed by the last Source to be selected for restoration. If you want to end with the very last Source in the last library, press **Enter**.

Press **F2** to display the Source File View of the selected backup file. This list contains all of the Source within the selected backup file. You may wish to use the **Up Arrow** and **Down Arrow** keys to scroll to the desired Library.Source name. Pressing **Enter** will select the Library.Source name.

Using name mask

This can be used to specify a mask that selects which Source is to be selected for this function. By using a mask you can select Source files having similar names without specifying each individual Source name. To pass by this item, press **Enter**.

Note: Masks for the restore function do not include the Library name. The Library name must be specified followed by a period '.' and a Source name or mask.

Masks set up a matching test with a Source name. The Source is selected if it matches the mask. If it does not, it is not selected. The mask specifies which part of the Source name must match the mask exactly. It is made up of the exact characters, in the exact position that must be present in the Source name if it is to be selected. The remaining part of the mask is made up of question marks. These question marks indicate that any characters in the same position are allowed and ignored when testing for a match.

Examples:

mask ABC??? (selects any Source whose name begins with ABC) mask 12??ab (selects any Source starting with 12 and ending with ab)

To select Source:

AAA123 AAA456 AAARTY AAABCD AAAQWE

Use mask: AAA???

To select Source:

12TT34 RTTTTT TTTT aaTT 1TTT23

Use mask: ??TT??

Note: The Source that is selected matches the mask where the mask characters are not question marks. Also, if you did not want to select Source AAA456, it would have been selected by the first mask. For this reason masks should be used with care.

Approve before restore?

Y Approval is required before Source is restored.

N Source is restored without approval.

Approve before replace?

Y Approval is required before Source is replaced.

N Source is replaced without approval.

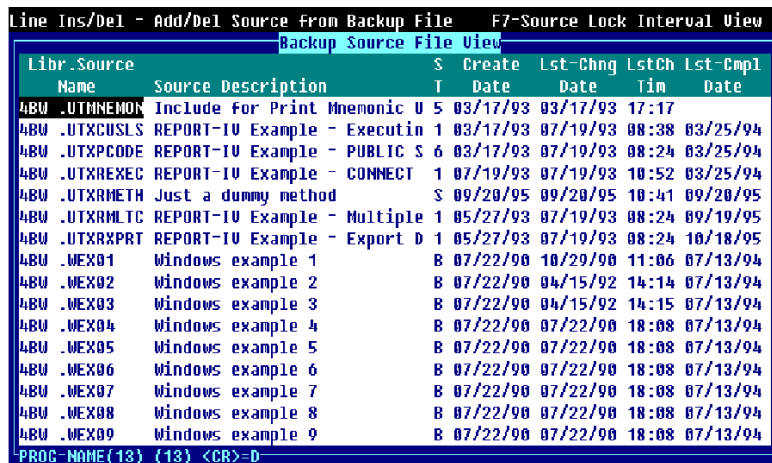
Edit

This selection allows you to add or delete Source documents and edit session history from the specified backup file.

If you select **Edit** the system prompts:

Enter name for backup 8SCbk:

Enter the name for backup and the system displays the Backup Source File View:



Libr.Source Name	Source Description	S	Create Date	Lst-Chng Date	LstCh Time	Lst-Cmpl Date
4BU .UTHNEMON	Include for Print Mnemonic	U	03/17/93	03/17/93	17:17	
4BU .UTXCUSLS	REPORT-IV Example - Executin	1	03/17/93	07/19/93	08:38	03/25/94
4BU .UTXPCODE	REPORT-IV Example - PUBLIC	S	03/17/93	07/19/93	08:24	03/25/94
4BU .UTXREXEC	REPORT-IV Example - CONNECT	1	07/19/93	07/19/93	10:52	03/25/94
4BU .UTXR METH	Just a dummy method	S	09/20/95	09/20/95	10:41	09/20/95
4BU .UTXRMLTC	REPORT-IV Example - Multiple	1	05/27/93	07/19/93	08:24	09/19/95
4BU .UTXRPRT	REPORT-IV Example - Export	D	05/27/93	07/19/93	08:24	10/18/95
4BU .MEX01	Windows example 1	B	07/22/90	10/29/90	11:06	07/13/94
4BU .MEX02	Windows example 2	B	07/22/90	04/15/92	14:14	07/13/94
4BU .MEX03	Windows example 3	B	07/22/90	04/15/92	14:15	07/13/94
4BU .MEX04	Windows example 4	B	07/22/90	07/22/90	18:08	07/13/94
4BU .MEX05	Windows example 5	B	07/22/90	07/22/90	18:08	07/13/94
4BU .MEX06	Windows example 6	B	07/22/90	07/22/90	18:08	07/13/94
4BU .MEX07	Windows example 7	B	07/22/90	07/22/90	18:08	07/13/94
4BU .MEX08	Windows example 8	B	07/22/90	07/22/90	18:08	07/13/94
4BU .MEX09	Windows example 9	B	07/22/90	07/22/90	18:08	07/13/94

To add a Library.Source name press **Line Insert** from the Backup Source File View. The system prompts:

Enter Library.Source name to Add: _____

To delete a Library.Source name highlight the name and press **Line Delete** from the Backup Source File View. The system prompts:

Delete record?

The Library.Source name and Source description of the name being deleted is displayed.

Select one of the following:

Y Deletes the Library.Source name.

N Does not delete the Library.Source name.

To display the Edit Session History highlight the Library.Source name and press **F7**.

When you select **Backup, Restore, or Edit** the system prompts:

Enter name for backup file 8SCbk:_____

Enter the three-character suffix that will be added to "8SCbk". The backup file name will be "8SCbknnn". This will be the file name used when a backup, restore or edit operation is done. Also, when the backup is placed on or recovered from removable media the file name will be 8SCbknnn.

Note: If you are backing up edit history you will need to move both the 8SCbknnn and 8SCUBknnn files to the media in order to properly recover Source and edit history.

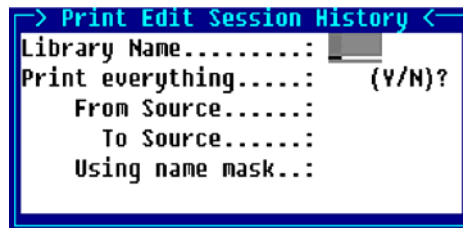
Print Edit Session History

This selection allows you to print the Edit Session History for a specified Source document. The Edit Session History contains all of the changes made to that Source, along with comments. For more information, see the section on **Source Locking and Edit History**.

When you select **Print Edit Session History** from the Source-IV Main Menu the system prompts:

Select Printer (LP P1):_____

The system displays the Print Edit Session History window:



Library Name

This is a name that is used to specify a library in which Source documents are kept.

The library name can be from 1 to 4 characters long and can consist of any combination of letters, numbers, or characters except (spaces ? / \ * [] @).

At this field you can press **F2** to display a view of library names. This list contains all of the currently defined libraries. The **Up Arrow** and **Down Arrow** keys can be used to scroll to the desired library name. Pressing **Enter** will select that library name.

The last library name used by the editor will be automatically displayed in this field. Pressing **Enter** will select that library name.

Print everything?

Y Edit Session History for every Source in the selected library will be printed.

N Option to enter a range or a single Source to be printed will be given.

From Source

Enter the name of the first Source document. If you want to start with the first Source document in the library, press **Enter**.

At this field you can press **F2** to display a view of Source documents in the selected library. The **Up Arrow** and **Down Arrow** keys can be used to scroll to the desired Source document name. Pressing **Enter** will select that Source name.

To Source

Enter the name of the last Source document to be selected. If you pressed **Enter** on the From Source field and you want to end with the last Source document in the library, press **Enter**. Otherwise pressing **Enter** will apply the same name as the name entered in the From Source field.

At this field you can press **F2** to display a view of Source documents in the selected library. The **Up Arrow** and **Down Arrow** keys can be used to scroll to the desired Source document name. Pressing **Enter** will select the Source name.

Using name mask

A mask allows selection of similar names without specifying each individual name. The mask specifies which part of the name must match exactly and question marks are used to indicate that any characters in the same position as the question mark are allowed.

Examples:

mask ABC??? (selects names that begin with ABC)
mask 12??ab(selects names starting with 12 and ending with ab)

To select names:

AAA123 AAA456 AAArty AAABCD AAAQWE

Use mask: AAA???

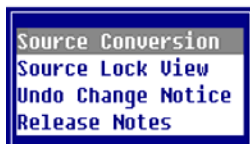
To select names:

12TT34 RTTTTT TTTT aaTT 1TTT23

Use mask: ??TT??

Other Functions

When you select **Other Functions** from the Source-IV Main Menu the system displays the following:



Source Conversion

Allows you to convert Source from Thoroughbred LIBRARIAN to Source-IV format.

Source Lock View

Prints a view of all Source files that are locked.

If **Source Lock View** is selected the system displays the Currently Locked Source View. For more information, see the **Source Lock View** section later in this document.

Undo Change Notice

View changes to Source based on edit session history in the form of a change notice.

If **Undo Change Notice** is selected the system displays the Library File View. For more information, see the **Undo Change Notice** section later in this document.

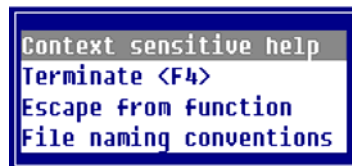
Release Notes

View what corrections and enhancements have been made to Source-IV.

Help (general)

This selection contains additional help information relating to overall system operation and file naming conventions.

When you select **Help (general)** from the Source-IV Main Menu the system displays the following:



Context sensitive help

The most important feature of all Thoroughbred Software products is the Context Sensitive Help. The key to remember is **F6**. At any point the computer is waiting for an operator input, you can press **F6** to display a help screen. From the displayed help the input options will be explained.

Terminate <F4>

To terminate a function press **F4**. The **F4** key has been reserved for this purpose in all Thoroughbred Software products.

Escape from function

To escape from a function that is executing, depending on the type of terminal, you can use one of the following keys:

Del

Shift-Delete

Ctl-X, Ctl-E, or Ctl-C

Esc

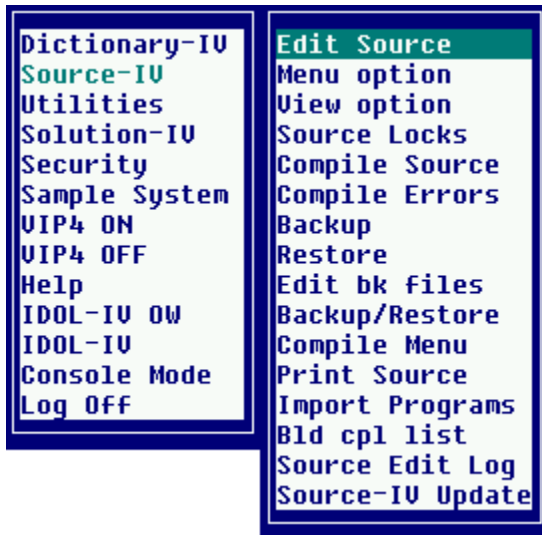
File naming conventions

All Source documents maintained by Source-IV are kept in files call libraries and within the library each Source document can have a name up to 8 characters long. When the Source document is compiled by Source-IV an executable object file is created using the 8-character name as the executable program name.

SOURCE-IV MAIN MENU – OPENWORKSHOP

The following sections document the options available from the Source-IV Main Menu. The same options as the Dictionary-IV version are available, however some are placed differently. The sections below will tell you where to find the information in Source-IV Main Menu – Dictionary-IV.

To access the Source-IV Main Menu, from the OPENworkshop menu (OO) select **Source-IV**, and the system displays the following:



Edit Source

Please refer to the Source-IV Main Menu – Dictionary-IV for the description of this option.

Menu Option

Select this option to use the Source-IV Main Menu – Dictionary-IV.

View Option

Please refer to the Source-IV Main Menu – Dictionary-IV (Library/Source Maintenance) for the description of this option.

Source Locks

Please refer to the Source-IV Main Menu – Dictionary-IV (Other Functions) for the description of this option.

Compile Source

Please refer to the Source-IV Main Menu – Dictionary-IV for the description of this option.

Compile Errors

Please refer to the Source-IV Main Menu – Dictionary-IV (Compile Source) for the description of this option.

Backup

Please refer to the Source-IV Main Menu – Dictionary-IV (Backup/Restore) for the description of this option.

Restore

Please refer to the Source-IV Main Menu – Dictionary-IV (Backup/Restore) for the description of this option.

Edit bk Files

Please refer to the Source-IV Main Menu – Dictionary-IV (Backup/Restore) for the description of this option.

Backup/Restore

Please refer to the Source-IV Main Menu – Dictionary-IV for the description of this option.

Compile Menu

Please refer to the Source-IV Main Menu – Dictionary-IV (Compile Source) for the description of this option.

Print Source

Please refer to the Source-IV Main Menu – Dictionary-IV for the description of this option.

Import Programs

Please refer to the Source-IV Main Menu – Dictionary-IV for the description of this option.

Bld Cpl List

Please refer to the Source-IV Main Menu – Dictionary-IV (Compile Source) for the description of this option.

Source Edit Log

Please refer to the Source-IV Main Menu – Dictionary-IV (Compile Source) for the description of this option.

Source-IV Update

Please refer to the Source-IV Main Menu – Dictionary-IV (Other Functions) for the description of this option.

SOURCE EDITOR

The Source Editor is similar to the editor used to edit window help, pop-up menus, and text fields. This section documents the Source Editor.

Using the Source Editor

The following is a description of how to use the Source Editor.

Quick Key Reference

Key	Description
F1	Split line. For more information, see F1 Split Line .
F2	Join line. For more information, see F2 Join Line .
F3	Syntax/Def Help. For more information, see F3 Syntax/Def Help .
F4	End. Prompts for saving and exiting the help text. For more information, see Software Conventions (Function Keys) .
F5	Syntax check. For more information, see F5 Syntax check .
F6	Help. Provides a network of help on how to use the editor.
F7	Special Functions. The following options are available: Compile, Change tabs, Select date, Document edit, Edit session history, Edit mode options, Color settings, Lock Source, Unlock Source, View Source locks, and Compile errors view. When the source is locked a limited menu will be available. For more information, see F7 Special Functions .
F8	Search/Replace. For more information, see F8 Search and Replace .
F10	Goto. For more information, see F10 Goto .
F11	Comment. For more information, see F11 Comment .
F12	Copy. Select a document name to copy. For more information, see F12 Copy .
F13	Cut/Paste. For more information, see F13 Cut and Paste .
F14	Undo. For more information, see F14 Undo .

Key	Description
F15	Char/Grph mode. For more information, see F15 Character/Graphics Mode - Video Attributes, Graphics and Color.
F16	Print. Allows the contents of the window being edited to be printed. Before printing, you will be given the option to select a printer.

Cursor Movement

The following keys are available:

Key	Description
Left Arrow	Moves one space to the left.
Right Arrow	Moves one space to the right.
Up Arrow	Moves up one row.
Down Arrow	Moves down one row.
Page Up	Moves up one page.
Page Down	Moves down one page.
Tab	Moves three spaces to the right.
Back Tab	Moves three spaces to the left.
Char-Insert	Inserts characters at the position of the cursor.
Char-Delete	Deletes the character at the position of the cursor.
Line-Insert	Inserts a row at the position of the cursor.
Line-Delete	Deletes the row at the position of the cursor.

F1 Split Line

Splits the line where the cursor is located. The text from the cursor position to the right will be relocated to a newly inserted line.

<p>This is how to <u>s</u>plit a line.</p> <p>With the cursor under the s in split press F1.</p> <p>This is how to split a line.</p>	—
--	---

F2 Join Line

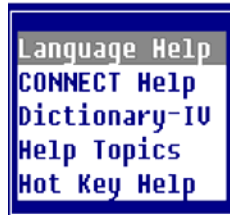
Joins the line after the line where the cursor is located to the end of the cursor line.

<p><u>T</u>his is how to join a line.</p> <p>With the cursor under the T in This press F2.</p> <p><u>T</u>his is how to join a line.</p>

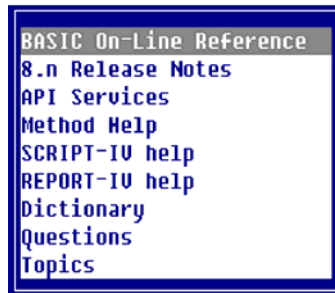
F3 Syntax/Def Help

Allows you to access on-line help for language syntax and access Dictionary-IV definitions. You can get on-line help for Thoroughbred Basic syntax, Script-IV syntax, Report-IV syntax, help for CONNECT classes, or a list of Dictionary-IV definitions from which the definition details can be viewed. The Thoroughbred Basic syntax includes the Thoroughbred Basic on-line reference, release notes, API Services, etc.

From within the Source Editor press **F3**. The system displays the syntax/def help menu:



If you select **Language Help** from the syntax/def help menu the system displays the following:



From the menu above scroll to the option you would like help on and press **Enter**.

If you select **CONNECT Help** from the syntax/def help menu the system displays the following:



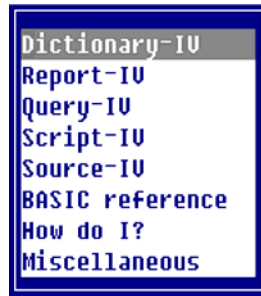
From the menu above scroll to the option you would like help on and press **Enter**.

If you select **Dictionary-IV** from the syntax/def help menu the system displays the following:



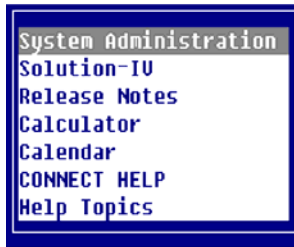
You can then select a specific Dictionary-IV definition type from the above list and the system displays a view of all definitions of the type selected. From the view you can highlight a definition and press **Enter** to select it, the system displays a view of the details for that definition.

If you select **Help Topics** from the syntax/def help menu the system displays the following:



From the menu above scroll to the option you would like help on and press **Enter**.

If you select **Hot Key Help** from the syntax/def help menu then press **Ctrl-P** the system displays the following:



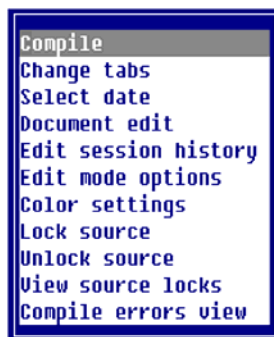
From the menu above scroll to the option you would like help on and press **Enter**.

F5 Syntax Check

Allows syntax of the current statement, entire program or range of statements to be checked. If a syntax error is encountered, the cursor will be positioned where the error was encountered in the statement.

F7 Special Functions

Press **F7** to display the following:



Compile

When you select **Compile** the system displays the Source Compile Selection input window. The Library Name, Compile everything, From Source, To Source, Using name mask, and Program name fields contain the information for the current Source. You must enter information into the Directory number/name field. To use the default directory name IDL4, press **Enter**. When all information is entered the system prompts: **Is this correct?** If you select **N** the system places the cursor at the Library Name field allowing you to change any incorrect information.

Change tabs

When you select **Change tabs** the tab bar (line) appears at the top of the Source. You can change tab settings by typing a **T** where you wish to insert a tab stop. In Source-IV you can type a **C** (comment character) in the tab line and when you press **F11**, the cursor will position to the space where the **C** is in the tab line and insert a "!". Everything to the right of the comment character is ignored during compilation and not included in the compiled program. The **period** key and the **Space Bar** enter periods. For more information, see the Dictionary-IV User Guide.

<T...T...C...T...T...>

< Sets the left margin.

> Sets the right margin.

T (Or character other than a Period or a Space Bar) sets tab stop.

C Comment character. Everything to the right of this character will be ignored during compilation.

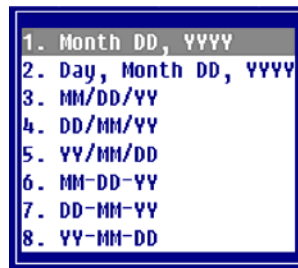
Use the **Up** and **Down Arrow** keys to move the tab line up and down through the text. You can then set margins and tabs for lines to be inserted in the text or reformat existing text.

Once the left margin is set, using Change tabs, you may press **F11** return the left margin to column one for the current line only. For each line that follows, the left margin returns to the Change tabs setting.

Select date

When you select **Select date** the system places the current date in the text at the current position of the cursor. If the date does not fit on the line, the date moves left of the cursor until the date fits. The date replaces any text on the line.

Various date formats are allowed and can be custom tailored to the users need. The following menu displays:



Document edit

Enter the name of a file (full path), Dictionary-IV help name (llhhhhh) or a Source-IV Source name (.llll.sssssss). If a file or document is found, the contents of it will be displayed and editing can be done.

Document Names

- lldddddd specifies an Dictionary-IV Help definition in library ll.
- .llll.dddddddd specifies a Source-IV document in library llll.

Files

- /usr/lib/doc1 specifies a UNIX text file doc1 in the UNIX directory /usr/lib.
- \TBSC\DOC1 specifies a DOS text file DOC1 in the DOS directory \TBSC.
- D:\TBSC\DOC1 specifies a DOS text file DOC1 in the DOS directory D:\TBSC.

Cut/paste blocks

- / <> specifies a view of cut text blocks. From this view cut text blocks can be selected, deleted, or edited.
- / < > 3 specifies cut text block 3.
- / < > C specifies that all saved cut text blocks are to be cleared. This option along with the cut text block view delete option, should be used to minimize the number of cut text blocks.

Document Lookup

- **F2** displays Dictionary-IV text libraries.
- **.F2** displays Source-IV libraries.
- **ll F2** displays Dictionary-IV text documents in library ll.
- **.llll.F2** displays Source-IV documents in library ll.
- **/usr/lib/** displays files in UNIX directory /usr/lib.
- / <> displays a view of cut text blocks.

Edit session history

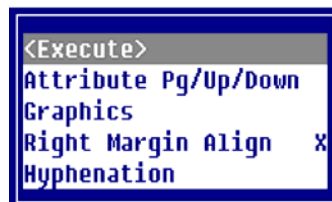
When you select **Edit session history** the system displays the Source Lock Interval View. This option allows you to view or undo selected edit session history. The edit session history contains all of the editing changes made to the Source text and may be viewed or rolled back so that a Source document can be restored to a previous state. For more information, see the **Source Locking and Edit History** section in this document.

Edit mode options

When you select **Edit mode options** the system allows you to modify the characteristics of the editor. These characteristics include the action of the **Page Up** and **Page Down** keys, graphics, the right margin alignment, and hyphenation.

Functions are applied only when you select the <**Execute**> option. Press **F4** to exit the menu and abandon any changes.

The **X** to the right of a selection indicates that the selection is enabled. Press the **Space Bar** to enable or disable an option.



Attribute Pg /Up/Down

- X** The **Page Up** and **Page Down** keys change the current video attribute.
- Blank** The **Page Up** and **Page Down** keys scroll text pages up and down.

Graphics

- X** Graphics mode (For more information, see Graphics Display Attribute).
- Blank** Text mode.

Right Margin Align

- X** Right margin text alignment on.
- Blank** Right margin text alignment off.

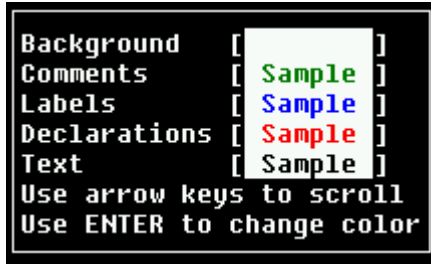
Hyphenation

- X** Hyphenation on.
- Blank** Hyphenation off.

Color settings

These settings allow you to customize the colors used when displaying your source code in the source editor. This can be defined by the user at the operator level.

Note: This change takes precedence over the ability to save a color map with a source module.



Scroll down to select the background, comments, labels, declarations, and text. Then use the **Enter** key to select the color to be used for each item in the source.

For information on color settings see, **F15** Character/graphic mode Video attributes, graphics.

Lock source

The Lock Source option is used to lock a Source module so that multiple edit sessions can be done. Source locks are maintained by operator code and prevent access to the locked Source by all other operators. To unlock a Source lock, after modifications are completed, the Unlock Source option must be used.

When a Source document is locked, you will have the option of supplying a description of the modification being done.

When a source module is locked, a limited **F7** menu will display allowing:

Edit session history: Select this option to view the edit session history for the source module, which includes an Undo option. When selected the edits will be rolled back for display only. The source cannot be saved.

View source locks: Select this option to view all source locks for the current library.

Compile errors view: Select this option to display the Compile error view.

Unlock source

The Unlock Source option is used to unlock a previously locked Source document. After the Source is unlocked, all other operators can access it. The history of all edit sessions, while the Source was locked will be saved, and if desired, can be rolled back. The Edit Session History option would be used to roll back previous edit sessions.

View source locks

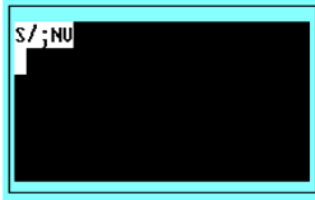
When you select **View source locks** the system displays the Currently Locked Source View.

Compile errors view

When you select **Compile errors view** the system displays a view of compile errors that were encountered during the last compile.

F8 Search and Replace

When you press **F8** the system displays the following search and replace window:



Modify the command line to perform the search or replace.

S searches.

R replaces.

/ defines search and search/replace values.

; defines search/replace pairs of values.

N not case sensitive searches (use C for case sensitive).

V verifies before each replace (use N for no verification before replace).

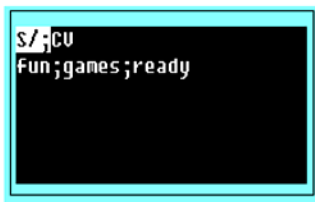
Use the above to define the type of search (replace) you will conduct. On the following line type the value(s) to search for or to find and replace.

Once the operation is defined you must press **F8** to execute it. Press **F4** to terminate without executing the operation.

Search

Searches the document for the specified strings.

Examples:



Searches the document and highlights the words fun, games, and ready when they are found. Only lowercase versions of the words will be located. The V (verification) has no meaning for searches.


```
S/;NU  
fun;games;ready
```

Searches the document as in the previous example, except all versions of fun, games, and ready will be found regardless of uppercase or lowercase. The V (verification) has no meaning for searches.

```
S/;NN  
fun;games;ready;prepared
```

Searches the document and highlights the words fun, games, ready, and prepared regardless of uppercase or lowercase. The N in the verify position has no meaning for searches.

Replace

Searches the document for specified strings and replaces all locations with new strings.

Examples:

```
R/;CU  
fun/games
```

Searches the document and highlights the word fun and provides option to replace fun with games. Only lowercase versions of the words will be located. Each find must be verified.

```
R/;NU  
fun/games
```

Searches the document as in the previous example, except all versions of fun will be found regardless of uppercase or lowercase. Each find must be verified for replacement.

```
R/;NN
Fun/games;ready/prepared
```

Searches the document and highlights the words fun (replacing them with games) and ready (replacing them with prepared) regardless uppercase or lowercase. The N in the verify position specifies that locations will be replaced without verification.

Commands

Allows you to delete text from the document.

```
S/;<CU
/<
```

Deletes all text lines from the beginning of the document to and including the line where the cursor is located.

```
R/;NU
/>
```

Deletes all text lines from and including the line where the cursor is located to the last line in the document.

```
S :;NN
:<
```

Deletes, as in the first example. The setting of the search-replace delimiter also identifies the command character.

The other option values have no meaning in the command operation.

F10 Goto

Searches the document from the current cursor position (plus one) until a line is found with the Goto value. If a text line is found that contains the Goto value (regardless of uppercase or lowercase), then the text line will be displayed at the top of the text window. If the Goto value is not found, the text window is not redisplayed. In a Method or Script Goto can be used to go to a procedure or statement label. Press **F4** to end the function.

Press the **F10** key a second time and a window listing labels and procedures will open. Select a label or procedure and press **Enter**. The system places you at that label or procedure.

Examples:

"Hello
Stops at the line containing hello in uppercase or lowercase.

""Hello"
Stops at the line that contains "hello" (in quotes) in uppercase or lowercase.

100
Goes directly to statement 100.

MAINLINE
Goes directly to the procedure or statement label MAINLINE.

F11 Comment

Prints the comment character at the position of the **C** in the tab line, the default is column 40 of the line where the cursor is located. Everything to the right of the character is ignored during compilation and not included in the compiled program.

F12 Copy

The following is a description of the copy command.

Position the cursor at the line in front of where the copied text will be inserted (or on top of where the copied text will be overlaid).

Enter the name of the document you wish to copy. If the document exists, it will be displayed and you will be allowed to edit the document. If the document is a cut text block, you will be given the option to save the changes. If the document requested does not exist, then the copy request will be canceled.

You will be given an option to insert or overlay the copied document.

For more information, see the section on **Using F12** in this document.

Enter the name of a file (full path), Dictionary-IV help name (llhhhhh), or a Source-IV Source name (.llll.sssssss).

If the file or document is found, the contents will be displayed and you may continue editing.

Document Names

- llddddd specifies an Dictionary-IV Help definition in library ll.
- .llll.ddddddd specifies a Source-IV document in library llll.
- /usr/lib/doc1 specifies a UNIX text file doc1 in the UNIX directory /usr/lib.
- \TBSC\DOC1 specifies a DOS text file DOC1 in the DOS directory \TBSC.
- D:\TBSC\DOC1 specifies a DOS text file DOC1 in the DOS directory D:\TBSC.

Cut/paste blocks

- / <> specifies a lookup of cut text blocks. From this lookup cut text blocks can be selected, deleted, or edited.
- /<> 3 specifies cut text block 3.
- /<> C specifies that all saved cut text blocks are to be cleared. This option along with the cut text block view delete option, should be used to minimize the number of cut text blocks loaded in memory.

Document Lookup

- **F2** displays Dictionary-IV Help definitions for all libraries.
- ll **F2** displays Dictionary-IV Help definitions in library ll.
- .**F2** displays Source-IV libraries.
- ll. **F2** displays Source-IV documents in library ll.

F13 Cut and Paste

The Cut and Paste function allows text to be cut from one place in a document and pasted in another (in the same document) or saved in memory. Cut text can be modified and/or saved for later use in editing sessions. See the Edit/Save option.

Note: The cut text can be pasted back in the original position, as well as being pasted in another place.

Once text has been cut, the cut text will be retained for pasting until **F4**, **F5**, **F7**, **F8**, **F12**, **F14**, or **F16** is pressed.

Cut Text

To mark the text that is to be cut, move the cursor to the start of the cut area and press **F13**. / <Cut> displays in the lower right corner of the window.

Move the cursor to the end of the cut area and press **F13** again. / <Cut> displays in the lower right corner of the window. The cut text will be removed from the document and the cursor will be positioned at the start of the area that was cut.

When a cut is terminated by pressing **F15** the Character/Graphic mode is activated. The display attributes and/or the colors of the cut text can be modified. Press **Enter** from the edit mode window to automatically overlay the cut text. See the **Character/Graphics Mode Video Attributes, Graphics, and Color** section in this document.

If the cursor is placed at the left-most margin of a line when the cut is started and ended, then it will be assumed that entire lines are being cut. Otherwise, it will be assumed that the start and end cuts are the top left and bottom right of a cut area.

Paste Text

To paste cut text back into its original position, press **F13** after the text has been cut.

To paste text in another position of the document, move the cursor to the desired position and press **F13**. The text can be pasted in as many positions as required. Each time text is pasted, you will have the option to insert, overlay, or edit/save the cut text.

Insert will insert the cut text in front of the cursor line. Overlay will paste the cut text on top of the cursor column/row and subsequent rows for the length of the current text. Edit/Save will allow the cut text to be edited prior to pasting or saving the cut text.

Delete Cut Text

Press **F3, F4, F5, F7, F8, F12, F14, or F16** to delete the cut text. Once cut text has been deleted, another cut text block can be defined.

Edit/Save Cut Text

The cut text can be edited or saved by pressing **F13** and selecting the **Edit/Save** option.

After the desired edits are made, the edited text can be saved in memory. Each cut text block will be given a sequential number starting at one. Saved cut text blocks can be accessed by any editing session prior to clearing the cut text (/ <> C).

Position the cursor where you want to insert or overlay the text. Press **F12** and type / <>n, where n is the number of the cut text block. Press **Enter** and the cut text block appears at the top of the screen. Press **F4** and select **Insert, Overlay, or Edit/Save**.

To display the existing cut text blocks press **F12**, type / <>, and press **F2**. The system displays the cut text blocks and you may select one from this listing.

F14 Undo

Will undo the last changed, deleted, or inserted line of text for the current editing session.

Continue to press **F14** to Undo modifications made during the current session, until the document has been restored to its original state.

If many modifications have been made and you want to restore the document to the original state, it is not necessary to undo each modification. Exit without saving, then reload the document. If you make modifications to a line and delete the line without saving, pressing **F14** will restore the line to the original state.

Note: The maximum size of the Undo string is 64K characters. When the Undo string size reaches 32K a warning prints in the window border (**F14** = nnnnn || 64000). When the Undo string size reaches 60000 characters, all function keys (except **F7** and **F14**) will be treated as a request to end and save the text). If the Undo string size is exceeded after these warnings, a system error will occur and the editing session will be lost.

F15 Character/Graphics Mode Video Attributes, Graphics, and Color

Use this function to specify the text and background attributes to be used in the window and, if you are using a properly configured color terminal, the use of foreground and background color.

If you are operating on a black and white terminal:

- You can only select the window attributes (any combination of reverse video, underscore, background, and blink).

If you are operating on a color terminal:

- You can select the window attributes (any combination of reverse video, underscore, background, and blink).
- You can select from up to 16 colors for the text foreground and background on your custom screen. You can only select colors if the Save Color Maps has been enabled in Installation Information. For more information, see Installation Information in the Dictionary-IV Administrator Guide.

The window attributes and colors should be set before entering text or codes. To change them for text already entered, you must select window attribute and/or color then type over the existing text.

Press **F15** and the system displays the following:



You may toggle Reverse Video, Background, Underline, Blink, Graphic, and Color on and off from this option. Once you make your selection select **<Execute>**.

A status bar appears at the bottom of the screen that displays currently selected attributes.

Window Attributes

The window attributes available are:

None



Full intensity characters.

Reverse Video



Full intensity background (area around characters).

Background



Half intensity (can be characters or background).

Blink



Blinking area of screen.

Underline



Underscored area of screen.

These attributes may be used in any combination providing 16 different combinations.

It is important to remember that underscore and blink are not supported by all terminals.



Foreground



Background

Set your default window attributes in the Window Configurator. For more information, see Window Configurator in the Dictionary-IV Administrator Guide.

Foreground/Background Color

There are 16 colors available for the Foreground and Background.

These colors display only if the option for Display Default Colors in the Operator Code screen is set to **N**. If this option is not specified or is set to **Y**, the default colors from the color selector will be used when the window is displayed. For more information, see Operator Code Information, Operator Information, and Window Configurator in the Dictionary-IV Administrator Guide.

Note: You can only select colors if Save Color Maps has been enabled in Installation Information. For more information, see Installation Information in the Dictionary-IV Administrator Guide.

When you make your selections, the system displays a sample at the bottom of the window.

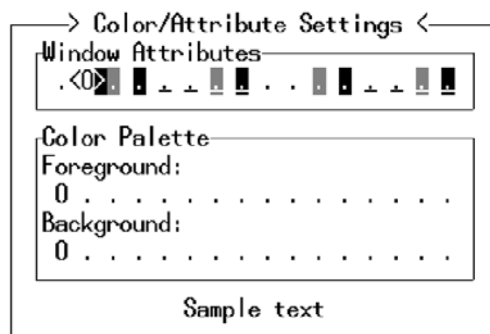
Using Attributes/Color Setting

Keys available in this option are:

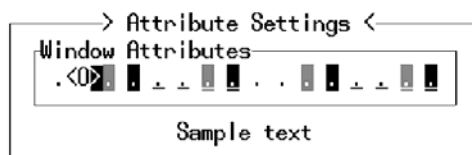
- Left Arrow** Moves the lightbar left across the Foreground/Background color.
- Right Arrow** Moves the lightbar right across the Foreground/Background color.
- Up Arrow** Moves the lightbar up from Foreground/ Background attributes.
- Down Arrow** Moves the lightbar down from Foreground/Background attributes
- F4** Exits and applies the changes.
- F6** Displays on-line Help.
- F7** Restores the original attribute/color settings.

Place the cursor where the window attribute or color is to begin. Select the **Attribute/Color Settings** option. The system displays one of following:

Color Terminal



Black and White Terminal



The <0> indicates the current setting. Use the appropriate arrow keys to make your selection. Your selections appear at the bottom of the window as sample text.

Press **F4** to save your selection and exit. Type the text or press **F5** insert an entry field. The system displays the text or entry field using the attribute/color selection you have chosen.

You may continue using this selection or make another selection. When you save and exit the screen modifications, the system saves the attributes/color selections you made. If you create another screen, the system returns to your default colors.

These default colors are defined in the Window Configurator. For more information, see Window Configurator in the Dictionary-IV Administrator Guide.

Note: The color attributes cannot be changed if the ability to save the color attributes has been disabled. Once this feature has been disabled, color attributes will be lost when the window is saved. If color text is saved on a non-color terminal, color attributes will be lost when the window is saved.

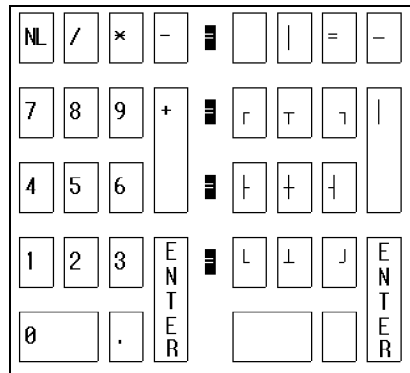
Character/Graphic Mode

Select this option to toggle between character and graphic mode.

In the character mode, the numbers operate normally. In the graphic mode they create graphic lines.

The following figure shows the numeric keypad in the character mode (left) and in the graphic mode (right).

Character/Graphic Mode:



The cursor keys and edit keys still function as in character mode. All other keys are invalid and a "ring bell" will occur if they are used.

Cursor movement will be clockwise after graphic corners are entered and will go in the direction of an intersect graphic character. A graphic center intersect will use the last direction mode.

SOURCE LOCKING AND EDIT HISTORY

Source-IV provides the developer with the ability to lock a Source document, restricting access to other developers, while automatically recording all revisions made to the Source. This feature prevents other developers from making concurrent and unrelated changes to the same Source code while providing a history of revisions which cannot only be reviewed but can be rolled back restoring the document to a previous state.

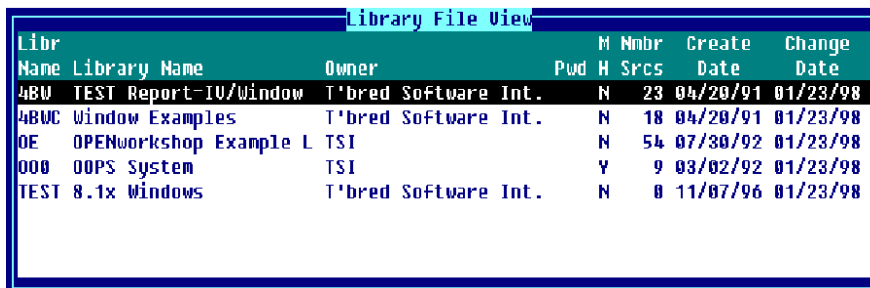
When a Source document is locked, the Dictionary-IV operator code is used to identify the developer who has locked the Source along with the date, time and other information. Access to this Source document will be restricted to display mode only for all other developers. Only the developer who has locked the Source can load the Source code for editing.

Locking the Source also records a lock interval in the edit history. This lock interval remains in effect until the developer who locked the Source selects the option to unlock the Source. While the Source is locked, each time the Source is loaded into the editor and changes saved, those changes are recorded in the edit history as an edit session. A lock interval is composed of one or many edit sessions.

Each edit session, a range of edit sessions or all edit sessions in a lock interval can be reviewed to identify the changes made to the Source. This can be done by viewing the details of the edit sessions or by producing an Undo Change Notice. This will show the net effect of all changes made in the selected edit session. Optionally, the edit sessions can be rolled back to revert the Source document to a previous state.

Enabling Source Locking and Edit History Maintenance

When you select **Library/Source Maintenance** from the Source-IV Main Menu the system displays the Library File View:



Lib	Name	Library Name	Owner	Pwd	MH	Nbr	Srcs	Create Date	Change Date
4BW	TEST	Report-IV/Window	T'bred Software Int.		N	23		04/20/91	01/23/98
4BVC		Window Examples	T'bred Software Int.		N	18		04/20/91	01/23/98
0E		OPENworkshop Example	L TSI		N	54		07/30/92	01/23/98
000		OOPS System	TSI		Y	9		03/02/92	01/23/98
TEST		8.1x Windows	T'bred Software Int.		N	0		11/07/96	01/23/98

Note: The MH field can also be accessed when adding a new Source library.

The MH (Maintain Edit History) field indicates whether or not Source-IV should enable Source locking and maintain the edit history for all Source documents in this library. From the Library File View, place the cursor on the MH field and type either **Y** or **N** to enable or disable Source locking and maintain edit session history:

Y Source locking will be enabled and edit history will be maintained for all Source in this library.

N Source locking will not be enabled and edit history will not be maintained for all Source in this library. If the Source library was previously set to **Y** and edit history exists, when a Source document is edited, you will be prompted to remove the edit history for that Source.

Source Locking

Locking a Source document will record a lock interval in the Source edit history and restrict access to the Source by all other developers. Once a Source document has been locked, each time the Source is loaded and changes saved, a history of those changes will be recorded in an edit session.

From the Source-IV Main Menu select **Edit Source** and enter a Library.Source name. After the Source document has been loaded, press **F7** and select **Lock source**. The system displays the Source Lock Detail Screen:

> Source Lock Detail Screen <					
Source Name: 00ZZC0		Description: Line 15: Entry (Basic Prog)			
Oper-Code: TSI	Lock Date: 01/28/98	Field 1: []	Field 3: []		
Term-ID: T0	Lock Time: 15:21	Field 2: []			
Change Desc: []					

Source Name

The system displays the Source document name.

Description

The system displays the Source document description.

Oper-Code

The system displays the current Dictionary-IV or OPENworkshop operator code. Only a developer with this operator code can access the Source document for editing. All other developers will be restricted to display mode only. Only a developer with this operator code can unlock the Source document.

Term-ID

The system displays the current terminal ID.

Lock Date

The system displays the date the Source was locked.

Lock Time

The system displays the time the Source was locked.

Field 1, Field 2,

and Field 3

These are optional 8 byte string fields and can be used to help identify the particular lock interval. These fields can also be sorted when using the Undo Change Notice selection and viewing the Source lock changes.

Change Description

This is an optional 80-character field, which can be used to provide a brief description of the lock interval.

Lock Notes

This is a text field, which can be used to provide a detailed description of the lock interval.

Source Unlocking

Unlocking a Source document will mark the end of a lock interval and allows full access to the Source document by all developers.

From the Source-IV Main Menu select **Edit Source** and type a Library.Source name. After the Source document has been loaded, press **F7** and select **Unlock source**. The Source Lock Detail Screen will be displayed and you will be prompted:

Are you sure you want to unlock this source?

Select one of the following:

Y The Source document will be unlocked. If no changes were made during this lock interval, the lock interval header will also be removed. If changes were made during this lock interval, the number of edit sessions, which have been logged, will be displayed on the screen.

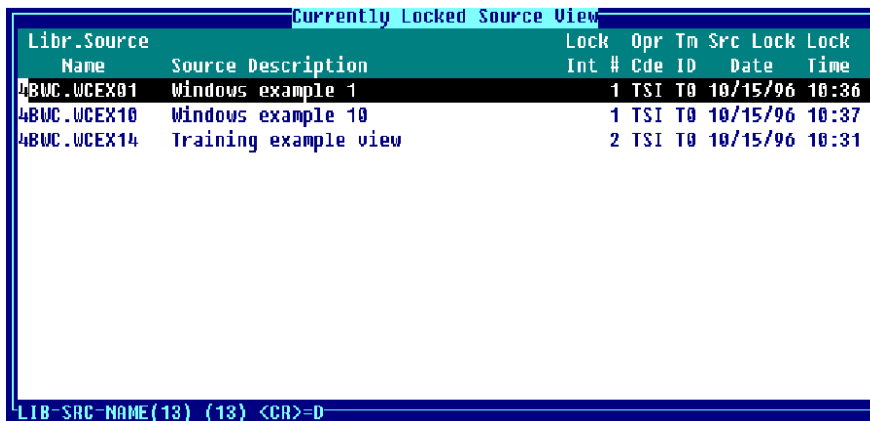
N The Source will remain locked.

Source can also be unlocked from the Source Lock View, see below.

Source Lock View

From the Source-IV Main Menu select **Other Functions**. From the Other Functions menu select **Source Lock View**.

The system displays the Currently Locked Source View:



Libr.Source Name	Source Description	Lock Int #	Opr Cde	Tm ID	Src	Lock Date	Lock Time
4BWC.WCEX01	Windows example 1	1	TSI	T0		10/15/96	10:36
4BWC.WCEX10	Windows example 10	1	TSI	T0		10/15/96	10:37
4BWC.WCEX14	Training example view	2	TSI	T0		10/15/96	10:31

LIB SRC NAME(13) (13) <CR>=D

The Currently Locked Source View lists the *library.source* document name, Source description, the operator code that currently has the Source locked, their Terminal ID, the Source lock date and time.

Select the source-name and press **F1** to edit that source.

There are several sorts available from this view. To change the sort order of the view, press **F5** the system displays the following:

```
SORT0 PREFIX(C) +LIB-SRC-NAME(C)
SORT0 PREFIX(C) +LIB-SRC-NAME(C)
SORT1 OPER-CODE
SORT2 LOCK-DATE(5,2)+LOCK-DATE(1,2)+LOCK-DATE(3,2)+ LOCK-TIME
```

Highlight the desired sort and press **Enter**. The Currently Locked Source View will be re-displayed in the selected sort order.

To unlock a Source document from this view, highlight the Source document to be unlocked and press **Line Delete** the system prompts:

Delete Record?

If you answer **Y** to **Delete Record** the system will display another prompt to verify your answer:

Are you sure you want to unlock this source?

If you answer **N** to **Delete Record** the Source will remain locked.

If your operator code is the same as the operator code who locked the Source, you will be given the option to unlock the Source as described above. If your operator code does not match, you will be unable to unlock the Source.

Undo Change Notice

The Undo Change Notice feature provides several tools for viewing and managing edit history.

All lock intervals for all Source documents by library can be viewed. This provides access to all the descriptive and header information associated with a lock interval.

A view of the detailed edit history for all Source documents by library can be viewed. The level of detail recorded here may not always be a practical approach to reviewing and analyzing edit history. A more useful approach is the UndoCN (Undo Change Notice View/Report).

An UndoCN document shows the net effect of edit history applied to the Source, showing statement changes, deletions and insertions.

From the Source-IV Main Menu select **Other Functions**. From the Other Functions menu select **Undo Change Notice**. The system will display the Library File View:

Libr	Name	Library Name	Owner	Pwd	M	Nmbr	Create	Change
					H	Srcs	Date	Date
4BV	TEST	Report-IU/Window	T'bred Software Int.		N	23	04/20/91	01/23/98
4BVC		Window Examples	T'bred Software Int.		N	18	04/20/91	01/23/98
0F		OPENworkshop Example L	TSI		N	54	07/30/92	01/23/98
000		OOPS System	TSI		Y	9	03/02/92	01/23/98
TEST		8.1x Windows	T'bred Software Int.		N	0	11/07/96	01/23/98

Select a library name and the system displays the Source Lock Interval View:

Source	Opr	Lock	Lock	Lock	Lock	Lock	Lock
Name	Cde	Date	Time	Int	#	Description	Text
UCEX01	TSI	10/15/96	10:36	1	1	Example lock interval	
UCEX10	TSI	10/15/96	10:37	1	1	Example lock interval	T
UCEX14	TSI	10/15/96	10:25	1	1	Change view defaults.	T
UCEX14	TSI	10/15/96	10:31	2	2	Change data file and sort file channels	T

TEXT-FIELD(1) (4) <CR>=D

All lock intervals are displayed in Source document order. It includes the Source name, operator code of the developer who locked the Source, lock date and time, number of lock intervals and lock interval description.

To display or edit the Lock Notes (text field), place the cursor on the Lock Text field and press **Enter**. The system displays the Lock Notes window:

```
Lock Notes
Example lock interval.
```

For more information, see the section on **Source Locking** in this document.

To view the edit history detail, from the Source Lock Interval View highlight the Source lock interval and press **Enter**. The system displays a view of the Edit Sessions for the selected lock interval:

SrcName	LckInt	LstSav	Date-Time (2)
UCEX14	2	10/15/96-10:34:54	
UCEX14	2	10/24/96-09:32:24	

Highlight the edit session and press **Enter**. Select **View**, a view of all the edits made during this session is displayed:

```

MCEX14 - 2 10/15/06 10:34:54
Change before/after 22 : 0
SCREENS(10)(3,2)=BIN(2,2),? Set sort file channel number.
SCREENS(10)(3,2)=BIN(2,C2),? Set sort file channel number.
Change before/after 21 : 0
SCREENS(10)(1,2)=BIN(1,2),? Set data file channel number.
SCREENS(10)(1,2)=BIN(1,C1),? Set data file channel number.
Change before/after 9 : 0
OPEN(2) "TC8DNTsk"; ? Open sort file.
OPEN(C2) "TC8DNTsk"; ? Open sort file.
Delete 9 : 0
Insert 9 : 1

```

To view or print the UndoCN, highlight the edit session and press **Enter**. Select **UndoCN**. The system displays the following:

```

> View Source Changes Options <
View selected lock changes only
View all subsequent lock changes

```

View selected lock changes only

This selection will display only the edit session changes made for the selected lock interval and not subsequent lock intervals.

View all subsequent lock changes

This selection will display all the edit session changes for the selected lock interval and all subsequent lock intervals.

After making your selection, the system displays the following:

```

View entire source
View changes only
Print entire source
Print changes only

```

View entire source

Displays the entire Source document showing the net effect of statement changes, deletions and insertions.

View changes only

Displays only those Source statements that have been changed, showing the net effect of statement changes, deletions and insertion.

Print entire source

Prints the entire Source to the selected printer. This will print a report similar to the View entire source option above.

Print changes only

Prints only the Source statements that were changed, inserted, or deleted to the selected printer.

Below is an example of an Undo Change Notice. The example below has **View all subsequent lock changes** and **View changes only** selected. The information displayed in the Undo Change Notice will vary depending on your selections:

```

UCEX14
          **** Undo Change Notice ****
Lock   Opr Tm   Lock
Intvl  Cd  ID   Date/Time   Field 1   Field 2   Field 3
-----
      2  TSI T0 10/15/96-10:31
This is another lock interval example. In this lock interval there will be
one edit session which changes both the data file and the sort file
channels. Available channels will be determined using the UNT function.
-----
*CALL "8VTEWF",FUNC$,SCREEN$(ALL),FORMAT$(ALL),C,SYSU$
dfgdsfgdsfgdsfgdsfgdsfgdsfg <-----
00100 CLOSE(1);CLOSE(2);          ! Insure channels are closed.
      C1=UNT;                      ! Get available channel. <-----
      OPEN(C1)"TC8DATA";          ! Open data file. <-----
      OPEN(1) "TC8DATA";          ! Open data file. <-----
      C2=UNT;                      ! Get available channel. <-----
      OPEN(2) "TC8DATsk";         ! Open sort file. <-----
      OPEN(C2) "TC8DATsk";       ! Open sort file. <-----

```

Note: Edit sessions and lock intervals are cumulative. For example, if you select the first edit session, the UndoCN will include all edit sessions for that lock interval. If you select session number 5 of 10, the UndoCN will include edit sessions 5 through 10. This is done since subsequent edits may be dependent upon edits made in a previous session. Edit sessions must be viewed historically.

Undo Edit Session History

The Undo Edit Session History option allows you to roll back selected edit sessions or an entire lock interval if it should become necessary to revert the Source back to a previous state. Once this option has been selected, the edit history cannot be recovered. As with the UndoCN option, edit sessions and lock intervals are cumulative. For example, if you select to undo the first edit session, all edit sessions for that lock interval will be undone. If you select to undo edit session number 5 of 10, edit sessions 5 through 10 will be undone.

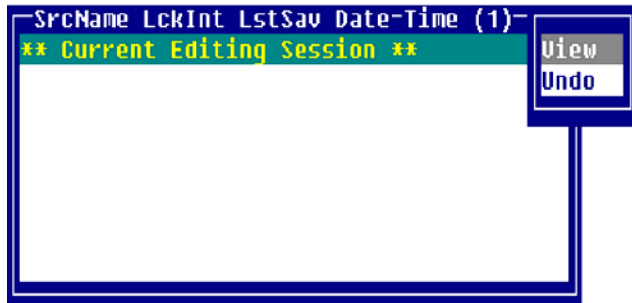
From the Source-IV Main Menu select **Edit Source**. Enter the library and Source, once the Source is loaded press **F7** (Special Functions). Select **Edit session history**. The system displays the Source Lock Interval View:

```

Source Lock Interval View
Lock  Opr Tm   Lock  Lock
Int # Cde ID   Date  Time Lock Interval Description
-----
      1  TSI T0 01/28/98 16:57

```


Highlight the appropriate lock interval and press **Enter**. A view of all of the edit sessions for that lock interval will be displayed (see above). Highlight the edit session for which the Undo Edit Session History is to be performed and press **Enter**. The system displays the following:



View

Displays the detailed edit session history of the selected edit session.

Undo

Will undo the selected and all subsequent edit sessions from the Source.

After selecting **Undo** the Source will be redisplayed in the editor reflecting the undo. To save the Source, press **F4**. The system prompts:

Save?

Select one of the following:

Y Save new text or text changes and exit the editor.

N Will not save new text or text changes.

The system then prompts:

Are you sure?

Select one of the following:

Y If you answered **N** to the **Save?** prompt and you answer **Yes** to the **Are you Sure?** prompt then new text or text changes will not be saved. If you answered **Y** to the **Save?** prompt and **Y** to the **Are you sure?** prompt the system will display the warning screen as seen below.

N **Save?** prompt will be asked again because you are not sure.

If you have selected an edit session, which requires subsequent edit sessions to also be undone, the following warning screen will be displayed:

```
* The Maintain Edit Session History Flag for this library has
W been turned off, but edit session history exists for this
A text file. Since future edit session history will no longer
R be maintained for this library:
N ALL EDIT SESSIONS FOR THIS SOURCE MUST BE DELETED!!!!!!!!!!!!
I
N A "YES" response will continue with the load procedure, and
G remove all editing sessions. A "NO" response will exit
* from the load procedure, and no editing sessions will be
  removed.
Continue with load:  (Y/N)?      Are You Sure:  (Y/N)?
```

From the warning screen you are prompted:

Continue with save?

The Edit Session History function was used on this Source module and was not reset to the Current Editing Session, therefore some editing sessions will have to be deleted.

Y Source will be saved in its current state, and the specified number of editing sessions will be deleted.

N Source will not be saved, and the specified number of editing sessions will not be deleted.

Are you sure?

This is an additional message that allows you to verify your answer to the previous question.

Y Will perform the specified procedure.

N Will return to the previous question and allows you to change your answer.

If you have selected to undo all edit sessions in a lock interval, the lock interval will also be removed.

WARNING: Once edit history has been undone, it cannot be recovered.

SOURCE MAINTENANCE

Introduction

Source text is the text form of a Thoroughbred Basic program you maintain in Source-IV. Source-IV stores this text in libraries and modifies it with a text editor. When complete, you then must compile the text into an executable Thoroughbred Basic program. You may create as many Source texts as you wish. Each must have a unique name.

Creating a New Source

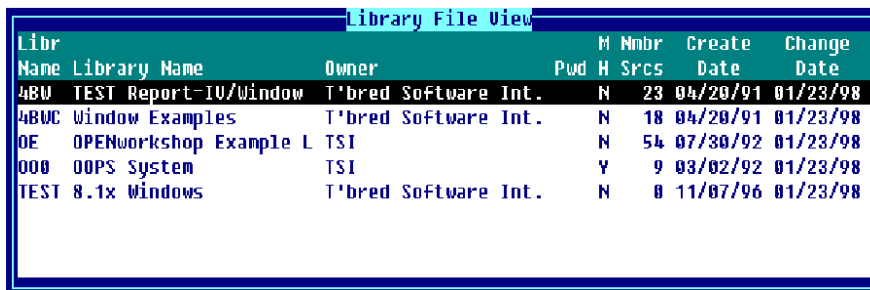
From the Source-IV Main Menu select **Edit Source**. The system displays the following window:



Enter the library name and the Source name that you wish to create. If the library and/or Source name does not exist, you will be given the option to create them. The format of the entered name is as follows:

LIBRARY NAME (1-4 chars).SOURCE NAME (1-8 chars)

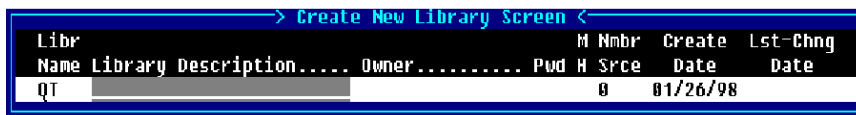
Press **F2** to display a view of library names. This list contains all of the currently defined libraries. The **Up Arrow** and **Down Arrow** keys can be used to scroll to the desired library name. Pressing **Enter** will select that library name.



A screenshot of a terminal window titled "Library File View" with a blue border. It displays a table of library information.

Libr	Name	Library Name	Owner	Pwd	M	Nmbr	Create	Change
				H		Srcs	Date	Date
4BW	TEST	Report-IV/Window	T'bred Software Int.		N	23	04/20/91	01/23/98
4BVC	Window	Examples	T'bred Software Int.		N	18	04/20/91	01/23/98
0E	OPENworkshop	Example L	TSI		N	54	07/30/92	01/23/98
000	OOPS	System	TSI		Y	9	03/02/92	01/23/98
TEST	8.1x	Windows	T'bred Software Int.		N	0	11/07/96	01/23/98

From the Library File View you can highlight the library you wish to select and press **Enter** to select it. The name of the library you selected is displayed in the Library.Source name window. If you enter a library name that does not exist the system displays the Create New Library Screen:



A screenshot of a terminal window titled "> Create New Library Screen <" with a blue border. It displays a table for creating a new library.

Libr	Name	Library	Description.....	Owner.....	Pwd	M	Nmbr	Create	Lst-Chng
					H		Srcs	Date	Date
QT						0		01/26/98	

Libr Name

Type a library name (1-4 characters) any combination of letters, numbers or characters (except spaces ?/* []@).

Press **F2** for a view of library names. This list contains all of the currently defined libraries. You may wish to use the **Up Arrow** or **Down Arrow** keys to scroll to the desired library name and press **Enter** to select that library.

Library Description

Type from 1 to 30 alphanumeric characters to describe the library being edited. This is an optional field and may be left blank.

Owner

Type from 1 to 25 alphanumeric characters to define the owner of the library. This is an optional field and may be left blank.

Pwd

Type from 1 to 3 alphanumeric characters for the library password. Library passwords are used to control access to Source documents. Passwords may also be specified for each Source document. This is an optional field and may be left blank. Two reserved passwords are available to specify how the resultant executable object is to be compiled; non-protected (listable) or protected (non-listable).

NOL does not restrict Source access, but causes executable object to be compiled and protected.

LON does not restrict Source access, but causes executable object to be compiled non-protected.

MH

Maintain Edit History gives the user the ability to undo changes made to a Source, and to also produce an Undo Change Notice that shows exactly what changes were made to a particular Source. Type **Y** or **N** in this field. For more information, see the section on **Source Locking and Edit History** in this document.

This indicates whether or not Source-IV should maintain the Edit Session History for all Source in this library.

Y Edit sessions will be maintained for all Source in this library. You will be required to Lock/Unlock Source in order to make changes.

N Edit sessions will not be maintained for all Source in this library. If this was previously set to **Y** and edit history exists when a Source is edited, you will be prompted to remove the edit history for that Source.

There are two types of records that are maintained by Source-IV when maintaining edit history:

Lock Intervals:

Records that are created every time a Source is locked. This record is used to separate each change in a Source.

Edit Sessions:

Records that contain the changes made each time the locked Source is saved from the editor. There can be an unlimited number of edit sessions for each lock interval. For more information, see the section on **Source Locking and Edit History** in this document.

Nmbr Srce

This field displays the number of Source documents in the specified library.

Create Date

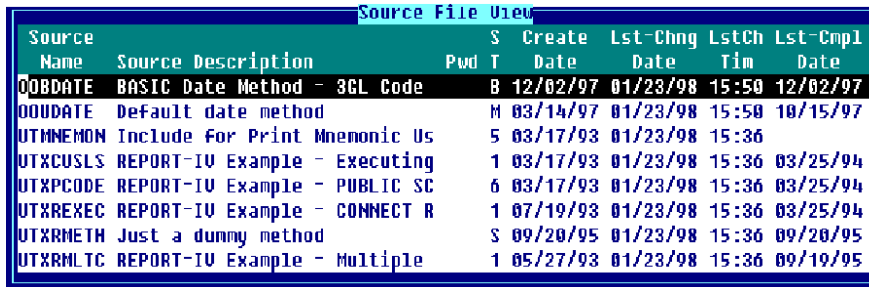
This field displays the date the library was created.

Lst Chng Date

This field displays the date of the last change made to the specified library.

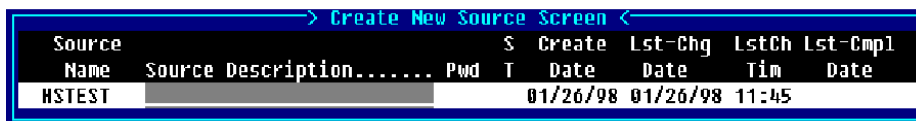
Once a library is selected you can create a new Source within the specified library by either entering a new Source name or pressing **Line Insert** from the Source File View.

Press **F2** to display the Source File View:



Source Name	Source Description	Pwd	T	S Create Date	Lst-Chng Date	LstCh Tim	Lst-Cmpl Date
00BDATE	BASIC Date Method - 3GL Code	B		12/02/97	01/23/98	15:50	12/02/97
00UDATE	Default date method	M		03/14/97	01/23/98	15:50	10/15/97
UTMNMEDN	Include for Print Mnemonic Us	5		03/17/93	01/23/98	15:36	
UTXCUSLS	REPORT-IV Example - Executing	1		03/17/93	01/23/98	15:36	03/25/94
UTXPCODE	REPORT-IV Example - PUBLIC SC	6		03/17/93	01/23/98	15:36	03/25/94
UTXREXEC	REPORT-IV Example - CONNECT R	1		07/19/93	01/23/98	15:36	03/25/94
UTXRmeth	Just a dummy method	S		09/20/95	01/23/98	15:36	09/20/95
UTXRMLTC	REPORT-IV Example - Multiple	1		05/27/93	01/23/98	15:36	09/19/95

If the Source name entered does not exist in the specified library, the Source create screen will be displayed allowing you to create a new Source:



Source Name	Source Description.....	Pwd	T	S Create Date	Lst-Chg Date	LstCh Tim	Lst-Cmpl Date
HSTEST				01/26/98	01/26/98	11:45	

Source Name

The Source name entered when creating a new Source can be from 1 to 8 characters any combination of letters, numbers or characters (except spaces ?/\ * [] @). The system will display the Create New Source Screen as shown above.

Source Description

Type from 1 to 40 alphanumeric characters to describe the Source being created. This is an optional field and may be left blank.

Pwd

Type from 1 to 3 alphanumeric characters for the Source password. Source passwords are used to control access to a Source document. Passwords may also be specified for each Source document. This is an optional field and may be left blank. Two reserved passwords are available to specify how the resultant executable object is to be compiled; non-protected (listable) or protected (non-listable).

NOL does not restrict Source access, but causes executable object to be compiled and protected.

LON does not restrict Source access, but causes executable object to be compiled non-protected.

ST

This field allows you to specify the type of Source being created. The Source types are as follows:

1-Primary (Script-IV)

Used as a starting point for processing.

2-Continuation (Script-IV)

Continuation of a primary or another continuation script.

3-Overlay (Script-IV)

Overlay to a primary, continuation, or another overlay script. It is a specialized type of continuation script that conserves memory and functions differently from a continuation script.

4-Pre/Post (Script-IV)

Used for pre/post processing in Dictionary-IV File Maintenance.

5-Copy (Script-IV/Basic)

When used in conjunction with the INCLUDE command, this Source can serve to save time and avoid duplication when writing scripts or Thoroughbred Basic programs.

6-Public (Script-IV)

Independent routing to a primary, continuation, overlay, or another public script. Having an independent data environment, the public script does not belong to a script set or have a parent script.

B-BASIC (Basic)

A Thoroughbred Basic program.

M-Method

A Thoroughbred Basic program written specifically for OPENworkshop. They can be connected from a menu, screen, or view (OPENworkshop only).

P-PPS Pre/Post

Used for pre/post processing in Public Programming Services (8INPUT).

S-Method Script-IV

A Script-IV script written specifically for OPENworkshop. This type should be used instead of Type 1 which is not supported in OPENworkshop, however, any existing scripts of other types can easily be changed to "S" type methods (OPENworkshop only).

U-Utility (Script-IV)

Same as a primary script, except that on startup:

The screen is not cleared.

The 3GL data environment is not initialized.

Open files are not closed; if run from a script be sure to close all open links before executing (CLOSE ALL).

Create Date

This field displays the date the specified Source was created.

Lst-Chg Date

This field displays the date the last change was made to the specified Source.

LstCh Tim

This field displays the time the last change was made to the specified Source.

Lst-Cmpl Date

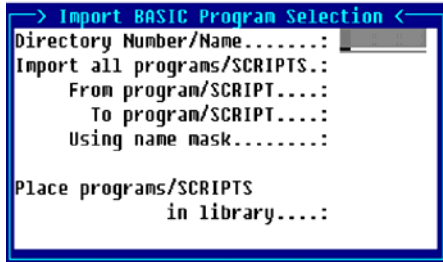
This field displays the date the specified Source was last compiled.

Note: All Source-IV dates have been converted to date type 8 for Y2K readiness. Existing source libraries can be converted by using the OOSUP0 utility. This utility selection can be found on the Source-IV pop-up menu "Source-IV Update".

Once a Library.Source name is entered and you press **Enter** from the input field the Source Editor is invoked. If you entered an existing Source module, the Source is displayed. If you are creating a new Source module, you will have either a blank editor screen or a Source template. Templates are available for scripts and methods but not basic Source. For more information, see the **Source Editor Features** section of this document.

Importing a Program

From the Source-IV Main Menu select **Import BASIC/SCRIPT**. This selection allows Thoroughbred BASIC/SCRIPT programs from any configured disk directory or dictionary to be imported into Source-IV. You may specify a single or a range of programs to import, and into which Source-IV library these programs will be imported. The system displays the following:



Directory Number/Name

Enter the number or the name of the directory from which BASIC programs will be imported into Source-IV. Entering IDDBD will import SCRIPTS from the data dictionary.

Examples:

- 1
- IDL4
- utils
- IDDBD

Import all programs/SCRIPTS?

Y All programs in the selected directory or all SCRIPTS from IDDBD will be imported.

N Allows program(s) or SCRIPT(s) to be imported using From and To values, and a selection mask.

From program/SCRIPT

For a range of programs, enter the name of the first program to be imported into Source-IV. If you want to start with the very first program in the directory, press **Enter**.

For a range of SCRIPTS, enter the library name as well as SCRIPT name (llnnnnnn).

If converting SCRIPTS, press **F2** to display a view of script names. The **Up Arrow** and **Down Arrow** keys can be used to scroll to the desired script name, pressing **Enter** will select that script name.

To program/SCRIPT

For a range of programs, enter the name of the last program to be imported into Source-IV. If **Enter** was pressed on the From Program/SCRIPT field and you want to end with the last program/script name in the library, press **Enter**. Otherwise the program/script name entered in the From Program/SCRIPT field will also be applied to the To Program/SCRIPT field.

For a range of SCRIPTS, enter the library name as well as SCRIPT name (llnnnnnn).

If converting SCRIPTS, press **F2** to display a view of script names. The **Up Arrow** and **Down Arrow** keys can be used to scroll to the desired script name, pressing **Enter** will select the script name.

Using name mask

A mask allows selection of similar names without specifying each individual name. The mask specifies which part of the name must match exactly and question marks are used to indicate that any characters in the same position as the question marks are allowed.

Examples:

mask ABC??? (selects names that begin with ABC)

mask 12??ab (selects names starting with 12 and ending with ab)

To select names:

AAA123 AAA456 AAArty AAABCD AAAQWE

Use mask: AAA???

To select names:

12TT34 RTTTTT TTTT aaTT 1TTT23

Use mask: ??TT??

Place programs/SCRIPTS in library

This is a name of a library into which the programs/SCRIPTS will be imported. If the specified library does not exist, the library create screen will be displayed and you will be allowed to create the library.

The library name can be from 1 to 4 characters long and can consist of any combination of letters, numbers, or characters except (spaces ? / \ * [] @).

At this field you can press **F2** to display a view of library names. This list contains all of the currently defined libraries. The **Up Arrow** and **Down Arrow** keys can be used to scroll to the desired library name. Pressing **Enter** will select that library name.

Editing Techniques

The sections below describe some editing techniques of Source-IV.

Compound Statements

Compound statements run faster and more efficiently than the same code broken into a number of different statements. Source-IV allows you to key in your statements so that they are easier to read and organize as separate routines.

Logic Formats (IF/THEN/ELSE-FOR/NEXT)

Source-IV allows you to use indentation of the code to help you see how your logic paths operate.

Conditional Compiling (IFDEF)

IFDEF definitions are optional compile switches that can be incorporated in Source code to control which Source code statements or segments are to be included in the executable code.

When IFDEF definitions are used and before compiling, it is important to check the status of the IFDEF definitions using the IFDEF definitions selection from the Compile Source option, otherwise compilation or logic errors may result.

Following is an example of how to use an IFDEF definition in a Source program:

Example 1:

```
# IF SWITCH-1
0100  IF A$(1,1)="X"
      GOTO 110
# ELSE
0100  IF A$(1,1)="X"
      GOTO 120
# ENDIF
```

Example 2:

```
# IFNOT SWITCH-1
0100  IF A$(1,1)="X"
      GOTO 110
# ELSE
0100  IF A$(1,1)="X"
      GOTO 120
# ENDIF
```

If SWITCH-1 is active when Example 1 is compiled, the first part of the statement is compiled, otherwise the second part of the statement is compiled. Just the opposite would result when Example 2 is compiled.

Only one level of #IF/#ELSE/#ENDIF is allowed and #ENDIF is mandatory, however there may be as many IFDEF definitions defined in the Source as required.

Format Lookups

From within the editor, position the cursor over any character in a format name (i.e. #OEFECUST).

```
Customer Insert method
SN OESCUST
....
PROCEDURE
  FORMAT INCLUDE #OEFECUST
  FORMAT INCLUDE #OEFSLRP
  OPEN SCREEN OESCUST
  PRINT SCREEN OESCUST
  INPUT SCREEN OESCUST
  LET #OEFECUST = OEFECUST
  LET MSG1$[0]="PRINT ROW;WRITE ROW"
OECUSTI
```

Press **F3** and the format definition displays for editing.

Format Editor - OEFECUST

Fld Num	Data Name	Field Size	K Y	F N	Help Code	Y N	P D	N E	U U	D D	S S	M B	A A	A A
1	CUST-CODE	6	Y	N	CUS01	N	0	0	0	0		X	X	X
2	CUST-CONTACT	25	N	N	CUS02	N	0	0	0	2		X	X	X
3	CUST-NAME	30	N	N		N	0	0	0	2		X	X	X
4	CUST-ADDRESS	30	N	N		N	0	0	0	0				
5	CUST-CITY	25	N	N		N	0	0	0	2				
6	CUST-STATE	2	N	N		N	0	0	0	3		X	X	
7	CUST-ZIP	10	N	N		N	0	0	0	0				
8	CUST-PHONE	10	N	N		N	4	0	0	3				
9	CUST-DISC	5.2	N	N		N	0	0	1	0	X			
10	CUST-CRLMT	5.0	N	N		N	0	0	1	0				
11	CUST-STC	2	N	N		N	0	0	0	0	X			
12	SR-CODE	2	N	N		N	0	0	0	3	X	X	X	
13	CUST-COMMENTS	1	N	N		N	6	0	0	0	X			
14	CUST-SALES	11.2	N	N	CUS14	N	0	0	0	0		X	X	

OECUSTI

INCLUDE Command

Single-Line Command

The INCLUDE Command is a single-line command in the Source text specifying an outside Source to copy during compiling. Executing this Thoroughbred Basic program includes the COPY code. This command allows you to copy common routines that appear in a number of different programs (line numbers and variable references are the same). This allows you to use a single Source routine instead of many different Sources containing the routine. Copy links Source text together. Use this method if the Thoroughbred Basic program is too large for a single Source (the maximum size is 1500 lines).

Using F12 (Copy)

This function is used to copy the Source that you are presently editing. You may copy from a file (full path), Dictionary-IV Help name (llhhhhh) or Source-IV name (.llll.ssssss).

Document Names:

- lldddddd specifies an Dictionary-IV Help definition ddddddd in library ll.
- .llll.dddddddd specifies a Source-IV document dddddddd in library llll.

Files:

- /usr/lib/doc1 specifies a UNIX text file doc1 in the UNIX directory /usr/lib.
- \TBSC\DOC1 specifies DOS text doc1 in the DOS directory \TBSC.
- D:\TBSC\DOC1 specifies DOS text file doc1 in the DOS directory D:\TBSC.

Cut/paste blocks:

- /<> specifies a view of cut text blocks if desired. From this view cut text blocks can be selected or deleted.
- /<>3 specifies cut text block 3.
- /<>C specifies that all saved cut text blocks are to be cleared. This option, along with the cut text block view delete option, should be used to minimize the number of cut text blocks.

Document Lookup:

- **F2** displays Dictionary-IV text libraries.
- **.F2** displays Source-IV libraries.
- ll **F2** displays Dictionary-IV text documents in library ll.
- .llll.**F2** displays Source-IV documents in library ll.
- /usr/lib/ displays files in UNIX directory /usr/lib. (If OPENworkshop is available on your system).
- /<> displays view of cut text blocks.

Compiling Source

Source Text/Basic Program Naming

It is not necessary to use the same name for the Source text and Thoroughbred Basic program. However, you must compile any Thoroughbred Basic programs with names different than the Source one at a time. You cannot use the multiple compile option.

Single-Source to Compile Basic Programs

You can use a single Source to compile Thoroughbred Basic programs with different names. All programs you generate from a Source that have different names than the programs are termed Alias Programs. They are identical programs but go by a different name (or alias).

Copy Over Existing Programs

If you compile a Thoroughbred Basic program with the same name as an existing program, the new program replaces the old one. Be sure that you transfer any changes you made to the old version to the Source before you compile it.

Erase Existing Programs

Source-IV allows you to erase all copies of a compiled program accessible from the IPL DEV lines. This feature is enabled by default and can be set at the operator code level.

To disable this feature, from the main Source-IV menu select **Compile Menu** and then select **Compile Options**. Set the Erase Programs to **N**.

```
> Source-IV - Compile Options <
Operator Code: sls
Display Compile Data: Y
Display Compile Errors: Y
Error message wait time: 15
Erase Programs: Y
```

Source Text Comments

Comments in the Source text do not transfer to the Thoroughbred Basic program.

SECURITY

Introduction

Source-IV allows you to create protected (encrypted) programs. This provides you with Source code security for programs or systems you are developing. This prevents users from altering the program. It also prevents illegal copying of software. For more information, see **ENCRYPT** and **PSAVE** in the Thoroughbred Basic Reference Manual.

Types of Security

There are two types of security within Source-IV:

- Source libraries and Source documents can be protected using passwords. For more information, see the section on **Creating a New Source** earlier in this document.
- Source-IV can compile Source documents and save them as protected programs. For more information, see **ENCRYPT** and **PSAVE** in the Thoroughbred Basic Reference Manual.

Protected Program Attributes

The sections below describe protected program attributes.

Permanent

Programs in the Protected form are permanent. Once you compile a program as Protected, you cannot make it listable or import it unless the password is known. You cannot convert Protected programs to listable programs. Recompile the Source into a listable program.

Importing

You cannot import a protected program.

Basic Commands

The following Basic commands can be executed on a protected program:

LOAD

RUN

The following Basic commands cannot be executed on a protected program:

EDIT

ESCAPE

LIST

SAVE

DELETE

Note: The **LIST** command cannot be executed on program lines greater than 100.

A protected Source should not contain the following Basic commands:

ESCAPE

SETTRACE

DELETE

Do not use the following Basic Utilities on protected programs:

***CPSD**

***HPSD**

***IPSD**

***PPSD**

***QPSD**

***SPSD**

***TPSD**

For more information, see **ENCRYPT**, **PSAVE**, and **LOAD** in the Thoroughbred Basic Reference Manual.

Creating Protected Programs

Mark the library and/or Source with the reserved password **NOL** (Protected). When used on a library, this password allows you to compile all Sources in the library as Protected. When using passwords, the Source password overrides the library password. This allows you to have a Protected library, but specify certain Sources as listable using the password **LON** (Listable).

In your Source document enter **PASSWORD IS "password"** and when the Source is compiled, the program will be protected using this password.

Both **NOL** and **LON** are always active and do not affect accessing libraries or Sources in the same way that standard passwords do.

Note: The library password and Source password are separate and apart from the protected password.

You may use other passwords, but they affect the ability to load or edit Source documents. The password restricts access to the library or Source documents and the system compiles programs as Listable even if library or Source passwords are present (unless NOL has been specified for the password).

ERROR MESSAGES

Below is a list of error messages that you may find in Source-IV:

Backup file not found.

The specified backup file cannot be located on any enabled disk directory. You must specify an existing backup file in order for this procedure to be executed.

COPY source xxxxxxxx is being edited by another user.

The specified COPY Source text module is being edited by another operator and cannot be compiled as part of this Source. This Source will have to be compiled when this COPY Source text module is available. Pressing **Enter** will continue with the next Source to be compiled.

Duplicate Programmable Functions (DEF FN), CR to continue.

The Source contains duplicate Programmable Functions (DEF FNx or DEF FNx\$) that contain the same identification character (x). This should be corrected.

Duplicate statement label.

The Source contains a statement label that is the same name as another statement label elsewhere in the Source. This should be corrected.

Encryption password not valid (4-8 characters).

The password specified in the PASSWORD IS clause of the Source is incorrect. The length of this password must be from 4 to 8 characters. The Thoroughbred Basic program has been saved but it is not encrypted.

Library already defined.

You have specified a name for a Library that already exists. In order to create a new Library, you must enter a name that has not been used.

You may use **F2** to list the currently defined Libraries. By entering a Library name followed by a period '.', the Library view will be displayed starting with the specified Library name.

Library empty but used by another user. Cannot erase.

This Library is empty, but is opened by another operator and cannot be erased. You may try to delete this Library again when it becomes available.

Library has not been created yet.

You have specified a name for a Library that does not exist. In order to carry out this procedure, you must enter the name of an existing Library.

You may use **F2** to list the currently defined Libraries. By entering a Library name followed by a period '.', the Library view will be displayed starting with the specified Library name.

Library is being edited by another user.

You are unable to get access to the Library because its specifications are now being changed by another user. You will not be able to access this Library until it is free.

Line numbers out of sequence.

A statement number that is smaller in value than the one previous to it has been detected. This must be corrected in order for this Source to be compiled.

Printer in use...CR to retry

The printer is presently being used. You will not be able to print using this printer until the person has finished and released the printer.

Printers not defined...CR to continue.

Printers have not been configured for your system. You will need to configure these printers using the *NPSD (BASIC Configurator) utility.

Printer not ready...CR to retry.

The printer is not ready due to an error condition, i.e. The printer may not be 'on-line'. You must correct this condition before you will be able to print.

Program cannot be located.

The Thoroughbred Basic program cannot be located on any enabled disk directory. Pressing **Enter** will continue with the next Thoroughbred Basic program.

Program is unavailable now.

The Thoroughbred Basic Program that you wish to access is busy. You will have to wait until the program is available before it can be accessed.

Program is encrypted. Cannot import!

The Thoroughbred Basic program cannot be imported because it is encrypted. This program can be imported when it has been un-encrypted.

Program is uninitialized...Cannot Import!

This Thoroughbred Basic program cannot be imported because it is empty (uninitialized) or is in an improper format. This program can be imported when its format has been corrected.

Save cannot be completed...Program busy!

The Thoroughbred Basic program on the specified disk directory cannot be replaced with this compiled version of the program because it is being used by another operator. The Thoroughbred Basic program can be replaced with this compiled version when the program becomes available.

Script is being edited by another user.

You are unable to get access to the Script because its specifications are now being changed or it is being edited by another operator. You will not be able to access this Script until it is free.

Source already defined.

You have specified a name for a Source that already exists. In order to create a new Source, you must enter a name that has not been used.

You may use **F2** to list the Source in a Library. By entering a Library name followed by a period '.', then pressing **F2**, the Source view will be displayed.

Source has not been previously locked.

The Source cannot be unlocked if it has not been previously locked. You must perform the Source Lock function before the Source can be unlocked.

Source is being edited by another user.

You are unable to get access to the Source because its specifications are now being changed or it is being edited by another Operator. You will not be able to access this Source until it is free.

Source is currently locked by xxx (yy), RETURN to view, <F4> to Exit.

The Source you are trying to edit is currently locked by another operator. xxx represents the Operator Code and yy represents the Terminal ID of the user who has the Source locked. The Source will not be available to you for editing, however, by pressing Enter you may view the Source. Any changes made will not be saved.

Source xxxxxxxx is being edited by another user.

The specified Source is being edited by another operator and is unavailable at this time. This Source can be accessed when it becomes available.

Statement xxxxxx too large for syntax check.

The statement currently being processed is too large for syntax checking. If you wish to syntax check this statement you must find a logical breaking point in the statement and break it into two statements. Although the syntax check has a limit on the statement size, the Source compile does not, and this statement will compile properly.

System Error: program L:line -E:error CR=Retry E=End

This message is displayed for certain types of system errors. Information on the program and line number in which the error occurred is given, along with the Thoroughbred Basic error condition.

Depending upon the error condition and other factors, it may be possible to recover and continue. To continue enter a carriage return (CR). If this does not work, take down all of the displayed information (program, line, error) and contact Thoroughbred Software International, Inc. 732-560-1377. From this information, it may be possible for us to identify the problem and assist you in recovering.

Common errors are: 0-busy device or off-line printer

-floppy is not disabled

-disk is full (or other disk problems)

Thoroughbred LIBRARIAN files cannot be located.

The Thoroughbred LIBRARIAN files (BELIB and/or BEDOC) cannot be located on any enabled disk directory for conversion purposes. These files must exist in order for the Source conversion process to be executed.