

GUIDE TO OPERATIONS

OVERVIEW

MRCLEAN is a general-purpose 'clean-up' utility for previously written BASIC-2 and NPL code. Programs are enhanced as follows:

ENHANCEMENTS FOR NPL v3.x

- 1) Automatic indentation of statements (aka "pretty printing"): FOR/NEXT, IF/THEN DO, IF/ENDIF, WHILE/WEND, REPEAT/UNTIL and SWITCH/END SWITCH constructs are affected. The default indentation is two characters but this value may optionally be set as desired.
- 2) Removal of unreferenced line numbers: line numbers consume substantial amounts of memory and increase program load/resolution times. With some exceptions, MRCLEAN will remove unreferenced line numbers by concatenating statements together up to any desired maximum number of statements per line (the default is 22 statements per line.)

Lines which are numbered more than 100 apart are not combined (to support overlays.) The first and second lines of each program are not combined. COM, DATA, DEFFN, LOAD T, FUNCTIONS, PROCEDURES, % images and = Labels are maintained on separate lines for clarity (unless they were previously concatenated by the programmer). Typical programs will show a 10%+ reduction in line numbers and an even greater improvement in load/resolution times.

- 3) Removal of selected GOTO statements: when the last GOTO or THEN statement on a line references the very next program line, the text is converted to an IF/THEN DO or IF/THEN IF construct. For example **10 IF X<1 THEN 20: A=1: B=2** is changed to read **IF I>=1 THEN DO: A=1: B=2: ENDDO.**
- 4) Conversion of ERROR statements: ERROR statements are converted to ERROR DO/ENDDO constructs. However, if the first ERROR statement is the statement on a line, (an erroneous construct), it is not converted.
- 5) REM \$PC statements are removed (the text that follows remains).
- 6) REM statements are converted to "line REMs" (;) for easier reading.
- 7) DIM statements with indented variable names are reindented to the same value as that used for loops, etc.
- 8) INIT(statements are converted to ALL(constructs.
PRINT HEX(0A) is converted to a simple PRINT statement.

Optional NPL v4.x ENHANCEMENTS

You may optionally request MRCLEAN to make the following enhancements:

- 1) Conversion to 'unary' operators for easier reading (example: Apple=Apple+1 ---> Apple+=1).
Note: Statements that follow the ELSE verb are not changed.
- 2) Conversion to structured IFs: Simple IF-THEN-DO/END DO constructs are modified to become IF/ENDIF constructs. To avoid potential conflicts, the current version does not alter complex constructs containing one or more ELSE clauses.

DISCLAIMER & REFUND POLICY

If, within thirty (30) days of the purchase of a paid license, you become unsatisfied with MRCLEAN, we will refund the purchase price upon receipt of your written request indicating 1) a brief description of the reason for your dissatisfaction, and 2) a statement that you have destroyed all copies of MRCLEAN in your possession.

Other than this specific right to a refund, MRCLEAN is licensed “as is” without warrantee or guarantee of any kind. Although reasonable care has been taken in the creation and testing of this software product, we do not expect it to perform perfectly with every software program, under every possible circumstance. Further, we specifically do not promise to correct all possible errors and/or omissions which may be discovered in the future.

It is the sole responsibility of the Licensee to institute appropriate testing and back-up procedures BEFORE commencing the use of this product and to maintain such procedures over time. We strongly recommend that you retest the functionality of every program after processing with MRCLEAN and/or any related software products.

A free, limited-edition copy of MRCLEAN is available for download from www.niakwa.com. Prior to purchasing an unrestricted license to MRCLEAN, we strongly recommend that you download this free software and utilize it in a “test” environment until you are satisfied that the products function satisfactorily with your specific application software and operating environment.

INSTALLATION

Please read **DISCLAIMER & REFUND POLICY** above before proceeding.

MRPROGS.BS2 contains programs "MRCLEAN", "MRSECURE", "MRSCAN", "MRINC" and "NPLDEV". These programs should be copied to your program disk image using either MOVE T "progname" TO T or by means of a suitable utility (such as that provided by Niakwa).

An ASCII text files named MRCLEAN.INI, MRINC.BAT, and MRCLEAN.BAT must also be copied to your default directory using DOS' COPY command, File Manager, etc..

It is mandatory that either the SSC-supplied or the Niakwa-supplied version of program "NPLDEV" exist within the same diskimage and that NPLSYS.BS2 exist in your working directory (usually \BASIC2C). Note that "NPLDEV" and "MRSCAN" are provided as source code while all other programs have been compiled and scramble-protected.

B2C.EXE must be in the working directory within your current search PATH Be sure that the version of B2C is at least as great as your version of NPL. **Note that B2C Rev. 4.21.05 had serious bugs -- use B2C Rev 4.21.06 instead!**

MODIFYING NPLSYS.BS2

NPLSYS.BS2 is a Niakwa-supplied utility diskimage containing programs which permit NPL programs to be converted to ASCII source code. A bug was discovered on Line 1220 of program "SOURCEIO" which should be corrected as follows:

```
Old text:      1220 SWITCH ...
                CASE ...
                IF Pcode_Level<3 OR ....
```

```
New text:      1220 SWITCH ...
                CASE ...
                IF Pcode_Level<1 OR ....
```

NOTE: If you do not make the above change then programs which are compatible with BASIC-2C versions prior to v3.0 will cause MRCLEAN to halt with a warning.

---> For your convenience, a corrected copy of NPLSYS.BS2 has been included <---

Modifying File MRCLEAN.INI

File MRCLEAN.INI contains several parameters which are used as defaults, as well as security information required so that the program will function with a selected #GOLDKEY. A typical file appears as follows:

```
Security=QUD8UZWLX-U7WGWS-C
MaxStatementsPerLine=22
Device=64
TabSet=2
TextArrayLines=125
```

All lines in this file follow the same pattern: Parameter=Value. Use EDIT or NOTEPAD when editing the file, avoid inserting blank spaces within a line. Text to the left of the equals symbol (Parameter) is not case-sensitive. Text to the right of the equals symbol (value) is case-sensitive.

Security= This line is provided by SSC when you order MRCLEAN. It supports the use of MRCLEAN with a single #GOLDKEY. If a different #GOLDKEY is to be used, you must manually edit this line (additional security codes are available for a nominal fee).

MaxStatementsPerLine=

Default value: 22. If unreferenced line numbers are found, MRCLEAN will concatenate lines up to this value. Note that 22 is ideal for editing so that any one line appears on a single display. A value of 0 will suppress line number concatenation.

Device= Default value: 64. MRCLEAN utilizes a single SELECT #xx device for its internal operations. You may change this value if it conflicts with your software.

TabSet= Default Value: 2. MRCLEAN automatically indents text within loops, IF/THEN constructs, etc. Each time an indent is required, a specified number of blanks are inserted. You may increase this value to a maximum of 8.

TextArrayLines=

Default Value: 125. MRCLEAN utilizes array Text\$(125)512 to temporarily store the contents of each program line. If any program is expected to have more than 125 statements in any one program line -- and you are utilizing a 32-bit version of NPL (e.g. Pharlap or the upcoming 32-bit Windows version), you may increase this value as needed.

Warning: If you set the last 4 values above to non-numeric values they will be ignored. However, setting them to extremely large or extremely small values (or values other than integers) can cause MRCLEAN to crash.

INCLUDING MRCLEAN

MRCLEAN is supplied as an NPL "module". Before attempting to use MRCLEAN, from a colon prompt type INCLUDE T "MRCLEAN" and press enter. The module will remain in memory thereafter until you specifically release it (see MRDIRT below).

'MRC

Typing 'MRC from a colon prompt will bring up a user-friendly display. Enter the desired disk image (it will default to SELECT #0), the program to be recompiled, and specify whether you wish to execute the optional "NPL V.4" enhancements (any entry other than "Y" or "y" is regarded as "N").

MRCLEAN will then recompile the program, rename it "X" and catalogue it on the source diskimage. If program "X" already exists, it will be overwritten. MRCLEAN will also create file "X.SRC" in your working directory which you may examine this file with any ASCII text editor. X.SRC is erased each time 'MRC is executed.

You may abort 'MRC at any time prior to responding to the last request by pressing TAB.

'MRRESET

As 'MRC runs, it will collect and display data concerning the number of unconditional branches and line numbers which have been removed. These values will continue to increase until 'MRRESET is executed (either under program control or in immediate mode)

'MRDIRT

MRCLEAN will remain in memory until 'MRDIRT is executed. 'MRDIRT clears a COM variable so that the MRCLEAN module is subsequently removed.

ABOUT MRSCAN

MRSCAN is an example program that demonstrates the use of 'MRCLEAN\$(to recompile entire diskimages. The recompiled programs appear in a diskimage named MRCLEAN.BS2 (you may modify the source code as desired).

Please read the REMark statements in MRSCAN and see the following pages for additional information.

'MRCLEAN\$ (a FUNCTION)

'MRCLEAN\$ was designed to support use of additional options and to permit the design of automated processing programs. The actual function call is as follows:

```
Z$='MRCLEAN$(SourceDiskImageName$55,  
  ObjectDiskImageName$55,  
  ProgramName$8,  
  CharsPerIndent,  
  MaxStatementsPerLine,  
  UseNPLv4Features_YN$1,  
  ChangeToUnaries_YN$1,  
  ChangeTHENDO_YN$1,  
  RemoveREMPC$_YN$1,  
  DiskSelect,  
  Reserved$60)
```

A sample program using this function, "MRSCAN", has been provided to recompile all or part of a diskimage with a single request. Examining the code should provide great insight into the use of the 'MRCLEAN\$ function.

CharsPerIndent indicates the number of blanks characters per indent "tab". A value of 2 yields excellent results but any value up to 8 may be used.

MaxStatementsPerLine may range from 0 (do not combine lines) to 99. A value of 22 is usually best in that such lines will fit entirely on one display. However, larger values (up to 99) will yield greater compression.

Please note that all "YN" questions default to "No" unless "Y". RemoveREMPC\$_YN\$ is not examined as MRCLEAN always removes REM \$PC statements. .

UseNPLv4Features_YN\$ was designed to permit future expansion of the capabilities of MRCLEAN. When using the current version, this variable, ChangeToUnaries_YN\$ and ChangeTHENDO_YN\$ should all be set indetically -- to either "Y" or "N" (upper-case).

DiskSelect is the SELECT #DiskSelect value used for the source disk. To avoid accidentally changing a SELECT # currently in use, we recommend a value that is relatively large (e.g. 20 to 64).

Return values for Z\$ include:

- blank (OK)
- "P" (protected program)
- "N" (program not found)
- "S" (Source code is corrupted).

LIMITATIONS

Max. Statement Length:	512 ASCII characters
Max. Statements Per Line:	125 (adjustable with 32-bit versions of NPL)
Max. Line Numbers Per Program:	999
Max. Program Size:	no limit
Maximum LIN Table size:	8,000 bytes
Source/Object Path Length:	60 bytes (55 bytes if manually entered)
Maximum Preserved Path Length:	80 bytes (for /D17, /D7A, /O17 and /O18)
Approximate Memory Usage:	500K + NPL RunTime overhead

DEVICE ADDRESSES

MRCLEAN utilizes several 'device addresses' on a temporary basis. It will automatically change them back to their original values upon completion of execution. However, files in use by your software when 'MRC' is called will be "closed" by the action of set and resetting the devices.

/D17	X.SRC
/D7A	Source Diskimage
/O17	X.SRC
/O18	General-purpose use
/O1E	Used to read MRCLEAN.INI (not reset!)

In the unlikely event that 'MRC crashes, the above addresses will not be reset! If the original path length exceeds 80 bytes, it will be truncated!

Please note that the NPLSYS.BS2 utility set utilizes a SELECT #x address which can be set as desired in program "NPLDEV". MRCLEAN uses the value of variable DiskSelect (which defaults to 64 in immediate mode or an specified in MRCLEAN.INI).

HINTS

USE RTI386.EXE FOR BEST RESULTS

Because of the need to \$SHELL to B2C.EXE, the “extended” runtime for DOS (RTI386.EXE) runs much faster than the Windows version (RTIWIN.EXE). When recompiling entire diskimages, the time difference can be significant.

MAXIMIZING COMPRESSION

If you want to create the smallest, fastest-running programs possible, we suggest running your code through MRCLEAN twice, using a relatively large number of statements per line. The first pass may remove selected GOTOs but be unable to fully combine all possible lines. A second pass guarantees maximum reduction of line numbers.

Since IF/ENDIF constructs create slightly larger programs than DO/ENDDO, turning off the NPLv4 flag may be useful.

OVERWRITING EXISTING FILES

It is extremely poor practice to use 'MRCLEAN\$ to overwrite an existing program of the same name (e.g. specifying the source and object diskimages as the same file). In the even B2C should fail or the diskimage prove to be unextendable, you can lose the original program! If this happens, immediately save file X.SRC -- the ASCII source after recompilation. Once you file the immediate problem, use B2C to compile X.SRC and rename it as required.

WATCH OUT FOR PROGRAM "X"!

'MRC always erases program "X" on the object diskimage while it is running. If you already have a program named "X" worthy of keeping, RENAME it!

KNOWN BUGS

CHARACTERS > HEX(7F) WITHIN QUOTES & IMAGES

Prior to examining each line for NPL verbs, MRCLEAN underlines all text within literal strings, remarks and PRINTUSING images. (e.g. PRINT "ABC" becomes PRINT " ABC"). Upon completion of processing, all underlined characters are automatically converted to normal characters using AND ALL(7F).

This can generate negative side-effects in the rare case that underlined characters [HEX(7F)-HEX(FF)] appear within literal strings or PRINTUSING images. Note that the simple underline (_) is not affected since NPL stores this character as HEX(5F).

Use of underlined characters was limited by the fact that most printing devices can not reproduce them; characters above HEX(7F) produce varying results on different operating systems; and, they are difficult to enter from a standard keyboard. In addition, such text was unstable in that simply recalling the line for editing on some systems could change its contents. However, we are compelled to provide the following warning:

If MRCLEAN is used with programs containing text characters > HEX(7F), the text will be altered -- changing the way some displays appear after processing .

No modification is anticipated as the required changes would greatly increase processing times and memory requirements.

COMMON PROBLEMS

THE DISPLAY BECOMES CORRUPTED

If the B2C compiler encounters illegal syntax, it will display the problem text. If this occurs, your program may either be corrupted or contain illegal verb usages. For example,

```
10 IF X=1 THEN DO: Y=1: ENDDO: ELSE Y=2
```

The line above contains an illegal use of "ELSE" (it should be "ELSE DO/ENDDO"). The program will still run but it may not perform as intended.

DEVICES & OPTIONS ARE CHANGED

If you reset MRCLEAN while 'MRC is processing a program, MRCLEAN will abort without resetting your device addresses. Bytes 41 and 45 of \$OPTIONS may also have been changed. If you HALT 'MRC mid-stream, be sure to press TAB (DEFFN'126) to reset these values.

CERTAIN PROGRAMS HALT WITH AN "S" ERROR

Niakwa program "SOURCEIO" contains a bug that renders it incompatible with some older programs. See "Installation Instructions" above for details on the required correction.

An "S" error may also indicate that your source program is corrupted. Examine the program for such problems, correct and rerun MRCLEAN.

MRCLEAN REFUSES TO RUN

MRCLEAN is licensed for only one #GOLDKEY per set. If you attempted to use it with a different GoldKey, it will refuse to run. Low-cost, extra copies are available.

ERROR D8x

If the disk index becomes completely full, a "D85" error will appear. If using 'MRC, simply use the ASC utilities to compress or expand the diskimage's index. Note: A disk index can hold only 16 entries per sector.

MRINC GUIDE TO OPERATIONS

Please read EVERY word that follows BEFORE using this product!

OVERVIEW

MRINC is a general-purpose utility which provides a simple method for inserting program statements into existing programs. Although specifically intended for use in adding "INCLUDE T" statements to the top of every program in a set, it may be used for other purposes as well.

MRINC has logic to assure that new statements are inserted immediately following the last existing INCLUDE (the safest possible default location). It also checks for redundancy, skipping programs where the desired statement already exists.

MRINC was intended mainly for "one-time" use. We therefore expended minimal effort on the "user interface", concentrating on "getting the job done" quickly and affordably.

INSTALLATION

The included MRINC.BAT batch file must be DOS-copied into the directory where B2C.EXE is currently located.

You MUST edit MRINC.BAT to assure that the first line reflects its location. The example below assumes B2C.EXE and MRINC.BAT are located in the directory "\BASIC2C":

CD \BASIC2C

```
@B2C /SRCLOC %1 /OBJLOC \DEV\NUL /LSTLOC %2 /LSTFORMAT .SRC /WARNINGS OFF  
/REM$ ON /KEEPREMS OFF %3 > \DEV\NUL
```

Note: The second line above should appear on a single line!

RUNTIME COMPATABILITY

MRINC operates best using RTI386.EXE. Use with RTIWIN.EXE may cause your system to run very slowly or "hang".

Using MRINC

MRINC is an NPL v4.x program intended to be loaded using LOAD RUN "MRINC". The following display will appear:

Source Diskimage:	\MYPROGS.BS2
Name Or Pattern:	*
Object Diskimage:	\BASIC2C\MRINC.BS2
B2C Directory:	\BASIC2C
Desired Statement:	INCLUDE T "COMMON"

Source Diskimage defaults to SELECT #0 but may be changed as desired.

Name or Pattern can be any valid LIST DC T pattern (including "?" and "*" characters).

Object Diskimage defaults to the value shown but may be changed. **WARNING!: The Object Diskimage will be SCRATCHED!**

B2C Directory is the subdirectory where B2C.EXE and NPLSYS.BS2 may be found. It defaults to "\BASIC2C".

Desired Statement defaults to the value shown but may be changed as desired. Up to 50 characters are permitted which **MUST** represent a valid program statement. **No attempt is made to validate the syntax of your entry until compilation (at which time, any errors are noted).**

MRINC will pass through the source disk, select all matching program names, insert statements as necessary and create the output disk indicated. Any problems are listed at the end of the run.

Press TAB to abort a run midstream. If you have not answered the last input request when TAB is pressed, the program will restart from the beginning.

If you are satisfied with the results, **make a back-up copy of your original programs** and then use utilities from Niakwa or ASC to update your original..

LIMITATIONS

Operating Systems:	386/Pharlap (recommended), MS-Windows (the resulting code may be utilized with any NPL-supported platform).
Max. Program Size:	16-bit Windows: any program whose decompiled source code exceeds 64,000 ASCII bytes will NOT be updated (a message will appear). 386/Pharlap: 256,000 ASCII chars.
Max. Programs Per Run:	2,000 (if you exceed this limit, the program will crash)
Source/Object Path Lengths:	55 bytes
Longest Inserted Statement:	55 bytes
Approximate Memory Usage:	500K + NPL RunTime overhead

DEVICE ADDRESSES

MRINC utilizes several disk addresses including D16, D17, D18 and D19. It does NOT attempt to reset them when completed. Be sure to check your device table for potential conflicts before proceeding (or execute \$END and start over).

WARNING!

This software is licensed "as is". SSC is not responsible for any loss or damage resulting from the use or misuse of this product. We offer no guarantees or warranties of any kind. Please assume that we are incompetent, negligent and absolute idiots. Even if "MRINC" causes your computer to initiate a nuclear chain reaction, the best you can hope for is a refund of the money you actually paid to SSC.

"MRINC" was intended for use solely by professional programmers who understand the risks involved and are prepared to design adequate tests to assure that the desired results are obtained. To show how easy it is to make mistakes with utility programs, we humbly present this example:

The first time SSC used this program, we accidentally specified an Object Diskimage that already existed. Much to our chagrin, it erased the diskimage then filled it with freshly recompiled code.

NEVER trust a program like MRINC that modifies other programs. Make a complete system back-up BEFORE proceeding. Double-check the results with a thorough test run. Be prepared for the worst.

HOW TO REPORT A PROBLEM

If you encounter a situation in which MRCLEAN or MRINC fails to perform as expected, please FAX the following form to SSC at (310) 642-7515:

Name:

Company:

Phone:

Fax:

email:

DOS Version:

MS-Windows Version:

NPL Runtime Version:

Problem Occurred (circle one):

While Running 'MRC
Using The Recompiled Code

Description (please include any NPL error messages, etc.):