User Impact Statements

Last updated: January 19, 1982

Control Data Field Support has compiled a set of User Impact Statements to accompany the release of NOS V2.1 and the Common Product Set (R9). These user impact statements are designed to inform the end user of changes to existing software that may affect running programs and procedures. These documents are written for and designed to be distributed to all average end users and not the system analyst. The system analyst should still refer to the Software Release Bulletin for details on internal changes. The topics covered in the user impact statements are listed below. You may choose to distribute those that might be of interest to end users at your site. These are impact statements only and do not reflect the new augmentations and features available with this release of NOS and the Common Product Set.

1. KRONOS control language (KCL) no longer available
2. CONVERT utility no longer available -- use FCOPY instead
3. Binary incompatibility of NOS V1 CRM programs using tapes
4. Differences with CDCS 2.3
5. Query Update 3.4 source incompatibility
6. QU/IMF syntax changed to be compatible with QU/CRM & QU/CDCS
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14. Unknown carriage control on Mode 4 terminals
15. Significance of X-OFF during input in paper tape mode
16. Changes specific to IBM 2741-compatible terminals

This list is complete as far as we can determine current to this date. If you encounter any problems we have omitted, please forward to the following address:

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You may also request an updated set of impact statements by calling Field Support at 408-744-5521. Please provide the date on the user impact statements you currently have if you call for an updated set.

KRONOS Control Language (KCL) No Longer Available

As of this release, support of KCL is dropped. Jobs which contain control statements which depend on KCL will no longer run properly. These control statements must be converted to equivalent structurès which use the Cyber Control Language (CCL). CCL is documented in Volume 3 of the NOS Version 2 Reference Set, in chapters 4, 5, and 6, and in Appendix M.

The following is a list of the problems you may encounter in connection with the disappearance of KCL.

1. The GOTO control statement no longer exists. Execution of a GOTO will cause the diagnostic: ILLEGAL CONTROL CARD.

   The GOTO in KCL would jump to the first occurrence in the command file of the specified label or command. This meant the jump could be either forwards or backwards in the command file. With CCL, transfers of control are normally forwards.

   The forwards jump can be accomplished with the SKIP and ENDIF control statements, or with the IFE and ENDIF control statements. The backwards jump can only be accomplished by creating a CCL iterative loop with the WHILE and ENDW control statements.

2. The IF control statement still exists, but it now supports the CCL IFE syntax as well as the KCL IF syntax. This means that an IF can be combined with an ENDIF to bracket the control statements to be executed when the IF is true, or an IF can be used to control a single control statement on the same line. Existing KCL IF statements will only need to be modified if they contain other KCL control statements, e.g., GOTO and CALL.

3. The CALL control statement no longer exists. Execution of a CALL will cause the diagnostic: ILLEGAL CONTROL CARD. The CALL control statement must be replaced by the BEGIN control statement.

4. KCL procedure files can not be executed with BEGIN. The KCL procedure file must first be converted to a CCL procedure file, which may then be executed with BEGIN. In the simplest case, the KCL procedure can be converted to CCL by the addition of a ".PROC" procedure header as the first line of the procedure file. If any parameter substitution is required, then each of the parameters which may be substituted must be declared in the ".PROC" procedure header statement.

User Impact 2

CONVERT Utility no Longer Available -- Use FCOPY Instead

As of this release, support of the CONVERT utility is dropped. Jobs which use this utility must be changed. An attempt to use CONVERT will cause the diagnostic: ILLEGAL CONTROL CARD.

The CONVERT utility handled character conversions between various different types. The FCOPY utility has been enhanced in this release, and the conversions that CONVERT handled can now be done with FCOPY. Replace calls to CONVERT with calls to FCOPY.

User Impact 3

Binary Incompatibility of NOS V1 CRM Programs Using Tapes

Prior to NOS V2, the device type returned by the operating system for a tape file indicated the format of the tape (S, L, SI) as well as the drive type (NT, MT). On NOS V2, the device type for a tape file no longer indicates the tape format.

CRM from NOS V1 used one bit of the old device type code to determine whether or not a tape was in L format. With the new device type codes for tape files, that one bit is always set.

If an absolute program has CRM from NOS V1 statically loaded, and tries to manipulate tape files, the tapes will always appear to CRM to be in L format. On non-L tapes, this will cause skip operations to fail, and other operations may also fail. The absolute binary of the program using CRM must be regenerated to eliminate the problem.

The same problem can occur if a user library copy of BAMLIB is used. More specifically, the problem will occur if the library contains a copy of OPEN$RM which does not include the code for PSR SW1A597. To eliminate the problem, either use the system library BAMLIB, or replace your user library with one which contains the proper level of CRM.

Note: this occurs on NOS V2.0 as well as V2.1.

User Impact 4

Differences with CDCS 2.3

NOS V2.1 includes the release of version 2.3 of the Cyber Database Control System (CDCS 2.3). This version introduces some incompatibilities with earlier versions of CDCS.

User application programs are unaffected by the change -- they are fully compatible in source, relocatable, and absolute formats. Database procedures, schemas, subschemas, and the database files are also fully compatible. Only the master directory and logfiles are incompatible.

1. The compiled version of the master directory is incompatible with earlier versions of CDCS. If CDCS or CDCSBTF is initialized using an incompatible master directory, CDCS aborts with the following message:

   CDCS ABORT, INVALID MASTER DIRECTORY

2. Some of the source statements accepted for the master directory compilation have been changed, primarily those related to logging and permanent file parameters.

   - Family name and device type specifications are now allowed as permanent file parameters.

   - Logging to magnetic tape is no longer supported. Logging is now done to one of a pair of permanent files. When one logfile becomes full or gets an error, CDCS switches to the second logfile and generates a job to copy the first logfile to tape. After the first logfile is copied, it is automatically reinitialized for later use (i.e., when the second logfile becomes full or gets an error).

   - Dual logging (parallel logging to both of two files) is no longer supported.

3. The logfiles written by CDCS 2.3 are incompatible with logfiles written by earlier versions of CDCS. The DBRCN/DBRST recovery modules for CDCS 2.3 can only process logfiles written by CDCS 2.3. Similarly, DBRCN/DBRST recovery modules for an earlier version of CDCS can only process logfiles written by that earlier version of CDCS.

4. Before initiating CDCS or CDCSBTF, all log files defined in the master directory must be preallocated using the new utility, DBREC. This includes the quick recovery files, journal log files, transaction recovery files, and the restart identifier files.

Query Update 3.4 Source Incompatibility

NOS V2.1 includes the release of version 3.4 of Query Update (QU 3.4). This version introduces a source incompatibility with earlier versions of QU. The incompatibility concerns the effects of a DISPLAY UPON directive.

The UPON option of the DISPLAY directive now creates a directory to the local file written. The directory allows subsequent QU directives to reference the fields of the local file records by their field names. Prior to QU 3.4, a separate DESCRIBE directive following the DISPLAY UPON was required to create the directory.

In QU, field names are used to reference temporary data items, local file data items, and permanent data items. QU recognizes these names through an algorithm which is documented in chapter 3 of the Query Update reference manual ("Dataname Qualification"). If a directory to a local file exists which contains the name of a database item, a reference to that name is deduced by QU to be a reference to the local file item, not the database item.

An existing job might use DISPLAY UPON in an effort to avoid the creation of a directory to the local file written. If such a job is run with QU 3.4, a directory will be created, and the execution of subsequent directives might be different from the prior level of QU. This might produce syntax errors, execution errors, or just incorrect results.

There are some techniques to circumvent any problem that arises because of this change:

1. Correct the dataname references in the directives which follow the DISPLAY UPON directive to use dataname qualification to uniquely identify each item.

2. Use the ERASE DESCRIBE directive after the DISPLAY UPON directive to eliminate the directory which was created.

User Impact 6

QU/IMF Syntax Changed to be Compatible with QU/CRM & QU/CDCS

NOS V2.1 includes the release of version 3.4 of Query Update (QU 3.4). This version introduces a source incompatibility due to the changeover of the syntax in the interface to the Information Management Facility (IMF). These changes result in syntax compatibility between the three modes of QU execution: QU/CRM, QU/CDCS, and QU/IMF. This eliminates many bugs and limitations of the original interface to IMF.

The following correspondence shows the old QU/IMF directives and what directives must now be used:

Old QU/IMF	New QU/IMF
FOR	IF
PRINT	DISPLAY
WRITE	EXTRACT
VIA	FOLLOW

Existing jobs, QU catalog files, and saved QU sessions must be changed to use the new syntax. The old syntax does not exist in QU 3.4, and syntax errors will result if the old syntax is used.

Different Messages Received During LOGIN

1. Prior to NOS V2.1, if you were validated for only a single application, e.g., IAF, and you entered another application name during LOGIN, e.g., ",JOE,SECRET,RBF", the system would respond with the message:

   ILLEGAL APPLICATION, TRY AGAIN

   With NOS V2.1, the specification of any application name is recognized as redundant if only one application is possible for that user. In the above example, there is only one possible choice of application: IAF. The system now responds with the message:

   VOLUNTEERED APPLICATION IGNORED

   and connects you to the application for which you are validated (IAF). In the example, the message would still be issued even if IAF was the chosen application.

2. When signing on at an asynchronous terminal running in full duplex mode (i.e., EP=Y), echoplex is turned off by the TIP when the user is prompted for the entry of the password. This prevents the viewing of the password by unauthorized persons. Echoplex will be turned on again after the password is entered.

3. Prior to NOS V2.1, if a user was unable to enter a correct user number/password combination within three tries, the user received the following message:

   ILLEGAL USER

   With NOS V2.1, this message has been changed to:

   USER RETRY LIMIT

4. If the application requested during login cannot accept a connection from this user, a message is issued to inform the user. Prior to NOS V2.1, this message was:

   CONNECTION PROHIBITED, TRY AGAIN LATER

   With NOS V2.1, this message has been changed to:

   APPLICATION BUSY, TRY AGAIN LATER

   In either case, you are then prompted to enter another application name.

User Impact 8

Some Terminal Emulators Might be Unable to Login

Terminal emulators, or microcomputers acting as terminals, which always send input of at least 100 characters may not be able to login. This is true, for example, of DATA-100 HASP emulators.

Prior to NOS V2.1, the network blocked messages in multiples of 140 characters. Anything over 140 characters would require two blocks to be sent through the network.

With NOS V2.1, the network blocks messages in multiples of 100 characters.

The program that handles the login processing cannot handle login messages that exceed one block (100 characters). It cannot concatenate the pieces of the message together, so it rejects any message which is not wholly contained in one block.

This problem can be avoided by telling the network to use a different blocking factor (BF). The default is BF=1, which allows for 100 characters. If BF=2 is set before login by a direct TIP command, then the blocks can contain 200 characters each. The value of BF can only be set to 1 or 2.

This problem can also be avoided by having the system analyst increase the upline block size (UBZ) for the terminal with the Network Definition Language (NDL).

User Impact 9

Terminal Characteristics Retained Across BYE or LOGOUT

In NOS V2.1, terminal characteristics are retained across HELLO, LOGIN, LOGOUT, and BYE. Previously, a BYE or LOGOUT would cause the characteristics to be reset. Now only disconnection from the TIP causes the characteristics to be reset.

This will affect you if a previous user changed the terminal characteristics and did not change them back before logging off. Then you may need to use terminal definition commands to remove the effects of the commands entered by the previous user.

Note that if your terminal or modem is connected in such a way that the TIP cannot detect when the terminal is disconnected or powered off, there is no way to get the TIP to reset the terminal characteristics.

New terminal characteristics can be established through the use of TIP commands or through the use of the TRMDEF control statement.

User Impact 10

Unexpected Overprinting on Hardcopy Terminals

Users of hardcopy terminals may experience overprinting of lines which are the same length as the page width. This is due to improper selection of terminal class (TC) which was not apparent in earlier versions of NOS.

Prior to NOS V2.1, there was an error in the handling of display class terminals -- if a line were sent to the terminal which was the same length as the page width, the TIP would also send a carriage return and line feed to reposition the cursor (print head). This caused double spacing for CRT terminals, and everything was fine for hardcopy terminals. This occurred for display class of terminals (OP=DI) as well as printer class of terminals (OP=PR). Thus, regardless of the class of the terminal, the output would look acceptable.

With NOS V2.1, the display class of terminal is now handled correctly. When the last character of the page width is sent to a display terminal by the TIP, a carriage return and line feed are assumed to happen automatically at the terminal, and does not require explicit action by the TIP. This is different from a display class of terminal where the TIP must include the carriage return and line feed in order to reposition the print head.

If your terminal is a hardcopy terminal and you experience overprinting of lines which are the same length as the page width, then try one of the following techniques:

1. Enter the TIP command to change the output type of your terminal to a printer type (OP=PR).

2. Enter the TIP command to set a terminal class of 1 (TC=1) which has a default output type of PR.

The above commands can be entered as parameters on the TRMDEF control statement, or they can be entered directly by preceding them with the control flag character, and following them with a carriage return (end of line character, actually).

Note that TRMDEF control statements can be included in your user prologue procedure. Refer to the UPROC control statement to see how to set up such a prologue.

User Impact 11

Terminal Messages from the TIPs Have Changed

Several changes have been made to the messages issued by the terminal interface program (TIPs, alias CCP). These changes were made to improve the clarity of the messages, and provide better information for the terminal user.

1. Incorrect TIP commands (e.g., <CT>EP=5) were diagnosed prior to NOS V2.1 by a message such as "EP ERR..". With NOS V2.1, these incorrect commands are diagnosed with much more meaningful messages. These messages are listed below:

   - xx ILLEGAL VALUE - The value entered for the command was not allowed. As in the above example with "<CT>EP=5", any value other than "Y" or "N" will result in this message being issued.

   - xx DUPLICATE CHARACTER - The TIP command tried to associate a function with a character to which there was already a function assigned. An example of this is trying to define the same character as the user break 2 character and as the backspace character.

   - xx ILLEGAL COMMAND - The command characters following the control flag character (<CT>) do not correspond to a valid TIP command. For example, "<CT>XX=Y".

   - TC ILLEGAL TERMINAL CLASS - The terminal class specified in the command is incompatible with the terminal being used. For example, when using an ASCII asynchronous terminal, trying to set IBM 2741 terminal class (TC=4) would result in this message.

   - xx VALUE INAPPROPRIATE - The value specified in the command identified by "xx" was inappropriate for the class of terminal being used. For example, an attempt to turn on echoplex (EP=Y) from a terminal connected to the X.25 TIP will result in this message.

2. Prior to NOS V2.1, the asynchronous TIP would respond with "REPEAT.." if you entered lines faster than the program on the host computer accepted them. The message indicated you had entered lines sufficiently fast to exceed the type-ahead limit, and the lines to which the TIP responded with "REPEAT.." were thrown away.

   With NOS V2.1, the message issued in this situation has been changed to "WAIT..". The lines to which the TIP responds with "WAIT.." are thrown away. A message is now issued to indicate that the TIP and the program on the host computer have almost caught up with you, and that it is possible for you to enter more lines. This message is "REPEAT..".

   Note that with NOS V2.1 the number of lines that may be typed-ahead before the TIP responds with "WAIT.." has been decreased from 63 to about 10. This can affect automated entry of input lines, especially when the automated equipment does not recognize the "WAIT.." message and know to resend that same input line later.

   If the type ahead limit is insufficient, it can be increased by either having the system administrator or analyst change the Network Definition Language (NDL) to increase the value of the upline block limit (UBL), or by changing the program to send a downline terminal definition command to increase UBL. Note this cannot be increased by a direct TIP command or by a TRMDEF call.

User Impact 12

Changes in TIP Commands

The TIP commands discussed here refer to TIP commands entered through the use of the TRMDEF control statement, or through direct commands which are preceded by the control flag character (CT) and followed by a carriage return (actually the end of line character).

1. Some TIP commands have been changed:

   AL — The AL command (abort input line) has changed to be the AB command.

   CD=A — The CD=A command sequence has been changed to the AR command (auto-recognition of terminal speed and codeset). After entering the AR command:

   1. Switch the terminal to the desired speed and codeset.

   2. A carriage return must be entered for terminal speed recognition.

   3. A right parenthesis (")") followed by a carriage return must be entered for codeset recognition. If using an ASCII terminal, the right parenthesis is optional; only the carriage return is required.

   After these steps are complete, the TIP will respond with the "AR ACCEPTED.." message.

   PL — The PL command will no longer allow the specification of a page length of less than 8 lines. A value of 0 is still accepted as infinite length.

   PW — The PW command will no longer allow the specification of a page width of less than 20 characters. A value of 0 is still accepted as infinite width.

2. Special TIP characters (BS, AB, CN, CT, B1, B2) may no longer be defined as alphanumeric. The values assigned must not be in the range 0-9 or A-Z.

3. The ASCII character for end of transmission, EOT, is now the default value for the TIP end of block character (EB). If your program requires the use of the EOT character, then you can change EB to some other value through a TIP command. For example, the following could be used to set EB to be the same character as the end of line character (EL):

```
TRMDEF,EB=EL.

<CT>EB=EL
```

where <CT> represents the control flag character.

RBF No Longer Rewinds Print File if Connection Broken

Prior to NOS V2.1, if a connection to RBF was broken during the printing of a file, the file was automatically rewound, and was restarted from the beginning when the connection was reestablished.

With NOS V2.1, RBF no longer rewinds the print file if a connection is broken. If it is desired to have the file rewound, the REWIND command can be entered upon reestablishing the connection to RBF.

Unknown Carriage Control on Mode 4 Terminals

Users with Mode 4 terminal emulators which connect to RBF should be aware of the following change.

Prior to NOS V2.1, carriage control characters in print files other than blank (single space), zero (double space), one (page eject), or plus (suppress space) were converted to blanks by CCP before sending the line to the terminal, thus giving a single space to each such line.

With NOS V2.1, CCP no longer converts those characters to blanks, and the terminal emulator must be prepared to handle the other possible character codes. If your emulator cannot handle the other possible codes, you can do one of the following:

1. Use the RBF command to suppress carriage control on the file.

2. Change the program to not write carriage control characters that the terminal cannot understand.

3. Change the emulator to treat all unsupported carriage control characters as blanks (single space).

User Impact 15

Significance of X-OFF During Input in Paper Tape Mode

If the input device is defined to operate in paper tape mode, then a carriage return (<EL>) followed by X-OFF is assumed to stop the paper tape reader. An X-OFF occurring in any other context has no special significance, and is taken as data (unless OC=Y was specified).

Changes Specific to IBM 2741-Compatible Terminals

1. Output mode of paper tape (OP=PT), input modes of paper tape (IN=PT) and transparent paper tape (IN=XP) cannot be selected for 2741 terminal types.

2. The cancellation of an input line at a 2741 terminal type is accomplished by entering the line cancel character (<CN>), pressing the ATTN key, and then entering a carriage return.

end