Consiglio Nazionale delle Ricerche

Common Command Language

Implementation on STAIRS / VS

Release 0

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CNUCE

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```
DDDDDDDDD           EEEEEEEEEEE
DDDDDDDDDDD         EEEEEEEEEEEEE
DD        DD        EE          EE
DD         DD       EE          EE
DD         DD       EE         EE
DD         DD       EEEEEEEEEEE
DD         DD       EEEEEEEEEEE
DD         DD       EE         EE
DD         DD       EE          EE
DD        DD        EE          EE
DDDDDDDDDDD         EEEEEEEEEEEEE
DDDDDDDDD           EEEEEEEEEEE
```

Common Command Language

Implementation on STAIRS/VS

Release 0

Reparto
Basi di dati e sistemi informativi

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A copy of this report is contained in the first file of the distribution tape.

The following JCI is suggested to obtain a print-out of the tape:

```
//NOTICE JOB
//       EXEC  PGM=IEBGENER
//SYSPRINT DD  SYSOUT=A
//SYSIN    DD  DUMMY
//SYSUT1   DD  DSN=SCS.MEMO,UNIT=TPV9,VOL=SER=CNUCE,
//             DISP=OLD,LABEL=(1,SL),
//             DCB=(RECFM=FB,LRECL=80,BLKSIZE=800)
//SYSUT2   DD  SYSOUT=A,DCB=RECFM=FBA,LRECL=132,BLKSIZE=1320)
```

The text is written in upper and lower case characters.

The distribution tape is 9 track, 1600 BPI, labeled CNUCE. Upon request, an unlabeled tape can be distributed. The JCL suggested above refers to the standard labeled tape, if an NL tape is used, the JCL must be changed.

The tape contains 10 files:

1. This note
2. SCS.TEST.MACLIB MACLIB to compile SCS modules
3. SCS.TEST.PLILIB PLIIIB to compile SCS modules

4.	SCS.TEST.SOURCE	SOURCE modified for SCS and ad hcc modules
		Input cards for message file generation
		Input cards for map generation
		Examples of CICS tables.
		EURO Database DECB
		VIEPARMS
5.	SCS.TEST.LOADLIB	LOADLIB SCS with STAIRS 2.5 PTF D0004
		TLS 1.0 APAR corrected until end April 80
		+ local FIX for SEARCH
		CICS 1.4 PTF 601 (pre-generated system)
		PL/I Optimizing Compiler, Version 1,
		Release 3.0, PTF 69
6.	SCS.TEST.CARDS	Update cards to SOURCE and MACLIB for SCS
		Update cards tc CICS and STAIRS source for
		TTY support.
		Examples of procedures
7.	TNDXEURO	
8.	TEXTEURO	
9.	INVTEURO	
10.	DICTEURO	

Note that the distributed LOADLIB has the TRACE=YES option; this considerably impacts performance and is therefore not

suitable in a production environment.
Therefore, if TRACE=NO is desired, the modules DLN020, VIE800, and VIE900 must be reassembled.

Whenever problems occur in the execution of programs written in PLI (SCS5xx) using the distributed LOADLIB these programs must be recompiled as described in point 7 of the installation instructions.

All the SCS.TEST.xxx files have been produced using the standard IEBCOPY IBM utility. The other files have been produced using a standard IEBGENER IBM utility.

The suggested space allocations for these data sets are as follows:

Data Set	BLKSIZE	LRECL	RECFM	SPACE	DSORG
SCS.TEST.MACLIB	6400	80	FB	6400,(50,10,10)	PO
SCS.TEST.PLILIB	400	80	FB	6400,(10,10,10)	PO
SCS.TEST.SOURCE	6400	80	FB	6400,(200,50,10)	PO
SCS.TEST.LOADLIB	6420	6420	U	6420,(50,10,10)	PO
SCS.TEST.CARDS	1600	80	FB	1600,(90,20,10)	PO
K358.SCS.TNDX	1900	19	FB	CYL,(1)	DA
K358.SCS.TEXT	1954	1954	F	CYL,(1)	DA
K358.SCS.INVT	1952	1952	F	CYL,(1)	DA
K358.SCS.DICT	1952	1952	F	CYL,(1)	DA

To install the CCI implementation on STAIRS/VS the following steps must be taken:

1. Space must be allocated for the data sets;
2. The content of the tape must be copied;

3. The new PPT, PCT, FCT and DCT must all be compiled. The entries required can be easily deduced from the examples given in SCS.TEST.SOURCE;
4. The new message files (SHORT e LONG) must be generated. The input cards are contained in SCS.TEST.SOURCE. An example of the procedure is given in the SCS.TEST.CARDS file;
5. The DECB and FFFILE for the EURO database must be generated and the relative entries must be added to the UREG records. The appropriate cards are given in member EURODECB of SCS.TEST.SOURCE.
6. In order to have TTY support, the DFHTCCLC, DFHTCEXT, DFHTCRN, and DFHTCTWX members in CICS.SOURCE must be updated using the corresponding members in the SCS.TEST.CARDS and the DFHTCP must be recompiled. The DLN020 in the STAIRS.SOURCE must also be updated with the cards contained in the TWX020 member of the SCS.TEST.CARDS;
7. If the CICS, STAIRS, TIS or PL/I levels are different from those indicated, the modified modules must be recompiled using a procedure which is analogous to that given in the SCSCOMP member of the SCS.TEST.CARDS;
8. The start-up CICS deck must be modified by adding the SCS.TEST.LOADLIB as the first data set defined in the DFHRPL DD card, the VIEMSGSC and VIEMSGSH DD cards and

the EURO database DD cards must be added and the DDs required for print queues must be included.

A. SCSTWA

A specific SCS Transaction Work Area has been defined. The layout of this SCSTWA is:

```
SCSFLAG   DS    XL1      GENERAL SCS FLAG                          SCSC
SCSIND    EQU   X'80'    SCS ENVIRONMENT                           SCSO
SCSCONV   EQU   X'40'    CONVERSATIONAL MODE                       SCSO
SCSSYSHP  EQU   X'20'    SHORT PROMPTING SYSTEM                    SCSO
SCSCMSHP  EQU   X'10'    SHORT PROMPTING COMMAND                   SCSO
SCSPGISF  EQU   X'01'    INPUT SIM. FOR PAGE CMD                   SCSC
SCSFFIND  EQU   X'02'    FIND COMMAND GIVEN                        SCSO
SCSCMRCV  EQU   X'04'    SCS COMMAND RECEIVED                      SCSO
SCSNFND   EQU   X'08'    NO FIND INDICATOR                         SCSO
SCSFLAG1  DS    XL1      GENERAL SCS FLAG                          SCSC
SCSTSGN   EQU   X'10'    SCST SIGNED ON                            SCSO
SCSBASE   DS    XL1      BASE FLAG                                 SCSO
SCSBSSN   EQU   X'01'    SIGN ON IN PROGRESS                       SCSO
SCSBSNM   EQU   X'02'    DBNM SUPPLIED IN BASE COMMAND             SCSC
SCSBSNE   EQU   X'04'    DBNM ERROR IN BASE MODULE                 SCSO
SCSBSPW   EQU   X'08'    DB PW SUPPL. IN BASE COMMAND              SCSO
SCSBSTH   EQU   X'10'    THESAURUS NAME GIVEN                      SCSC
SCSBSTE   EQU   X'20'    THESAURUS NAME ERROR                      SCSO
SCSBSTL   EQU   X'40'    THESAURUS LANGUAGE SUPPLIED               SCSO
SCSDSPLY  DS    XL1      DISPLAY FLAG                              SCSC
SCSQRYN   DS    H        SCS QUERY NUMBER                          SCSO
SCSSAVNM  DS    CL4      NAME FOR SAVE COMMAND                     SCSC
SCSTHES   DS    CL4      THESAURUS NAME                            SCSO
SCSTL     DS    CL1      THESAURUS LANGUAGE                        SCSC
SCWAOFLG  DS    XL1      PRINT FLAG                                SCSO
SCSPRIN   EQU   X'80'    PRINT COMMAND GIVEN                       SCSO
SCSPRRN   EQU   X'40'    REMOTE PRINTING                           SCSO
SCSPROF   EQU   X'20'    OFFLINE PRINTING                          SCSO
SCSPRDS   EQU   X'10'    DISK PRINTING                             SCSO
SCSSVBR   DS    F        SAVE AREA FOR BASE REG DLN020             SCSC
SCWARSVA  DS    F        SAVE AREA FOR REGISTER                    SCSO
SCWADBNM  DS    CL4      DBNM (FILLED BY BASE MODULE)              SCSO
SCWADBPW  DS    CL8      DB PASSWORD (BASE MODULE)                 SCSC
          ORG   SCWADBPW                                           SCSO
SCWATSK   DS    CL8      SCS TS KEY                                SCSC
SCWASTDN  DS    H        START DOCUMENT NUMBER (SHOW)              SCSO
```

```
SCWAENDN DS     H          END DOCUMENT NUMBER (SHOW)          SCSO
SCWAINDN DS     H          INCREMENT DOCUMENT NUMBER(SHOW)     SCSO
SCSDELIN DS     C          CHAR FOR DEL LINE                   SCSO
SCSBACSP DS     C          CHAR FOR BACK SPACE                 SCSO
SCWABTAP DS     F          BASE & THES. AREA AVAIL. POS.       SCSO
SCWABTNM DS     CL160      BASE & THES NAME AREA               SCSO
         ORG    SCWABTNM                                       SCSO
SCWATSRC DS     CL160      T.S. QUERY RECORD                   SCSO
         ORG    SCWATSRC                                       SCSO
SCWATSLN DS     H          T.S. RECORD LENGTH                  SCSO
SCWANUSD DS     CL2        ZERO BINARY AREA                    SCSO
SCWATSID DS     OCI8       SCS T.S. IDENTIFICATION             SCSO
SCWAUSID DS     CL2        INTERNAL USER ID                    SCSO
SCWARCID DS     CL2        TYPE OF RECORD                      SCSO
SCWALNNO DS     H          SCS  QUERY NUMBER                   SCSO
SCWASQNO DS     H          LINE QUERY NUMBER                   SCSO
SCWATSTL DS     H          USER QUERY NUMBER STAIRS            SCSO
SCWAQRY  DS     CL146      QUERY'S SAVE AREA                   SCSO
         ORG    SCWAQRY                                        SCSO
SCWACOMM DS     CL8        SCS COMMAND                         SCSO
SCWASQRY DS     CL138      SCS COMMAND'S PARAMETERS            SCSO
         ORG    SCWABTAP                                       SCSO
SCWAPRAP DS     F          ADDRESS OF PRINT COMMAND            SCSO
         ORG    SCWARSVA                                       SCSO
SCWAHALF DS     H          HALFWORD WORK AREA                  SCSO
SCWAHLF1 DS     H          2.ND  HALFWORD WORK AREA            SCSO
```

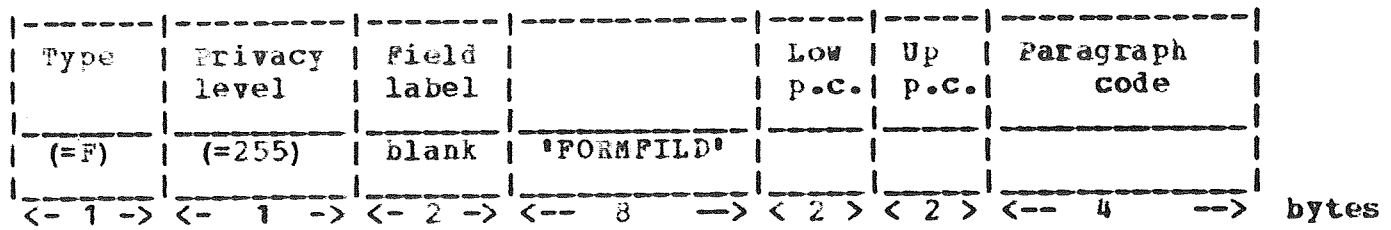
Although the meaning of these TWA fields should be clear from the description of the command, a brief description of each field follows.

SCSFLAG is a general SCS flag, i.e. it assumes particular values or combinations of values following events which are significant to the entire system. For example, the value given to the flag shows whether it is in the SCS environment or not.

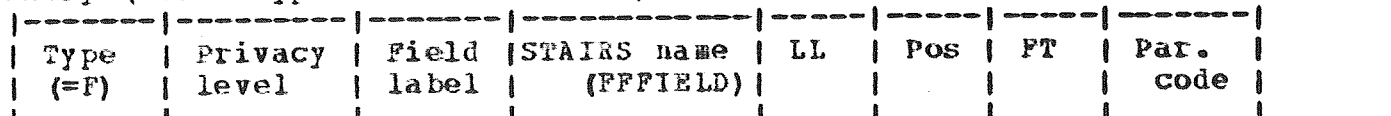
B. Correspondence Table

A table called CCL<dbname> has been built to define the correspondence between the CCL field labels and the STAIRS paragraph names and/or formatted field names.
The format of this table is as follows:

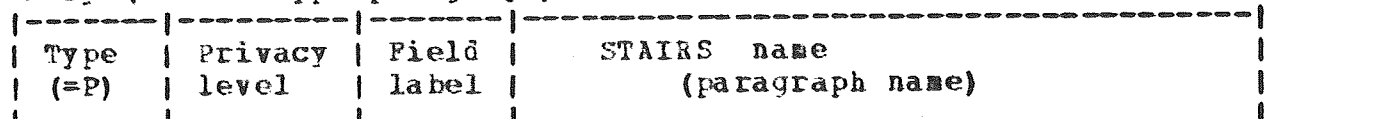
First entry (only one type).



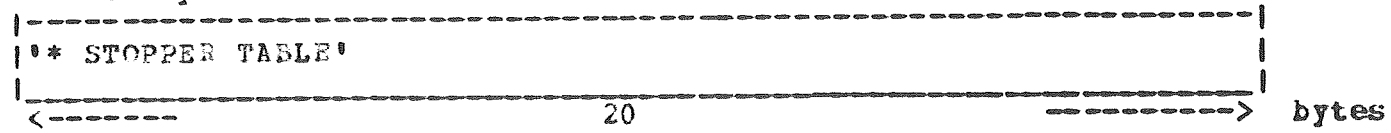
Entry (first type=formatted-field).



Entry (second type=paragraph).



Last entry.



In order to build this table the program CCL01 must be

executed according to the example given in the member CCLTAB of SCS.TEST.CARDS.

The format of input cards is as follows:

First card:

col. 1-3 lower limit

col. 4-6 upper limit

Note that these two limits define the special paragraph class name 'FORMFILD'. This range must be at least equal to (number of formatted fields + 1) and must not overlay other paragraph classes.

Successive cards:

col. 1-2 CCL field label

col. 3-3 blank

col. 4-19 name of corresponding STAIRS paragraph or FFIELD

The data base name is given as parameter.

C. The general philosophy behind the modifications

As a general rule, the SCS commands have been implemented as follows:

- the input string which contains the SCS command is passed to an ad hoc PL/I module. The string is analysed and scanned for all parameters. In general, the input is not positional. If the same parameter is entered more than once, the most recent input is assumed as that valid. Any errors are indicated.
  All valid parameters are put in SCSTWA and a flag is switched on.
  The input string is modified into an acceptable STAIRS format and control is returned to the STAIRS command driver.
  The appropriate STAIRS modules have been modified so that their logical flow is regulated by flags (e.g. simulating inputs and masking outputs).

D. General support modifications

The general support modifications are all those relative to CICS and to the two MACRO service modules: DLN020 and VIE900 for:

- TTY support
- Input conversion
- Conversational / nonconversational input
- SCS command definitions
- SHORT/LONG dialog (prompting)
- Message file selection
- Map selection.

D1. TTY Support

The TTY support has been implemented as follows:

- Time out (EP)

  The BTAM issues a READ CONVERSATIONAL (i.e. a READ with time-out). This problem can be bypassed by defining the parameter TEXTTO in the macro GROUP of EP as equal to NONE or 0 depending on whether the 3705 is working in PEP or EP mode.

- Input handling (DLN020, EP, TCTTWX)

  To send a message from the TWX terminal to the computer the following steps are necessary:

  1. Press the "CONTROL" and "ALPHA" keys for EOM
  2. Press the "RETURN" key
  3. Press the "IF" key.

  These three functions can also be achieved with just the "RETURN" key.

  The DLN020 module has been modified so that a CR-LF can be sent after a READ.

  In EP the CHAREC=(XONOFF,B1) parameter has been defined.

  The DFHTCTWX module has been modified so that "RETURN" can be accepted as EOM.

- Translate table (DFHTCTRN)

  The standard CICS translate table for TWX terminals

does not include all the possible upper and lower case characters or the transliteration for even and odd parity.

A new translate table is available.

- NL support (DFHTCEXT)

  The sequence of characters X'1517' will be converted to X'1526'.

- System prompting

  CCI requires that the system is ready for input when the following sequence is sent '/?'.

  This implementation has been achieved by modifying the string sent by the TCP at READ CONVERSATIONAL time.

  The standard string has been changed to '/?'.

  This change implies an update to the DFHTCCIC member of the CICS.SOURCE and a new generation of the DFHTCP module.

D2 = Input conversion (DLN020)

The CCL dialog is essentially non-conversational, i.e. each input normally consists of a command followed by parameters. STAIRS interprets all input beginning with ".." as commands. Consequently, each input is modified by prefacing it with two dots. The input is processed by STAIRS as a command, and can then be passed to a specific module (see DLNCMDEF

STAIRS macro).

D3 - Conversational / nonconversational input (DLN020)

In certain cases, however, the input must not be interpreted as a command because the system is asking for a specific parameter (e.g. the Database name, the password, the thesaurus name).
In these cases, the input conversion described in previous paragraphs would be mistaken and lead to an endless loop. Therefore, the SCSCCNV flag has been introduced. If this flag is switched on, no input conversion takes place. However, as CCL requires that the STOP command can be entered at any time, this word is checked in both conversational and non-conversational mode. In both cases, the input is converted to ..OFF.
This is in keeping with the STAIRS philosophy, which in certain cases accepts the input ..OFF in order to exit from an endless question-answer loop.

D4 - SCS command definitions (DLN020, DLN010)

All the SCS commands are defined in the SCSCMDEF table, assembled using the DINCMDEF macro.
In the SCS environment, for each input, the SCSCMRCV switch

is turned on and the command driver skips the normal input control to check whether a STAIRS command has been issued. It compares the input with the SCSCMDEF table. Incorrect and non-existent commands are refused. If the command is found in the table, control is passed to the relevant module and the SCSCMRCV switch is turned off. In this way, the command driver can examine the STAIRS module in which the ad hoc module has transformed the input and can process it in the standard STAIRS mode.

D5 - SHORT/LONG Dialog (DLN020)

The SHORT/LONG prompting is governed by two switches: SCSSYSHP (SYstem SHort Prompting) and SCSCMSHP (CoMmand SHort Prompting) as the short prompting can either be imposed with the DEFINE command (and in this case will remain valid for the whole session) or by preceding the command by a dot "." (valid for the execution of the command). Management at command level is realised by the DLN020 module which switches the SCSCMSHP off for each input, and then on again if the input string should begin with a dot.

D6 - Message File Selection (DLN020)

STAIRS and TLS messages not defined directly in the modules are contained in two files which have DLNMSG and VIEMSG, respectively, as their DDNAME.
The CCL messages are contained in 4 files: DLNMSGSC, DLNMSGSH, VIEMSGSC, VIEMSGSH. Whenever STAIRS or TLS use the DLN020 module to read a message from the DLNMSG or VIEMSG files in the SCS environment, the file name is changed to DLNMSGSH or VIEMSGSC. If at least one of the SCSSYSHP or SCSCMSHP flags are on, either the DLNMSGSH or the VIEMSGSH file is read, otherwise either the DLNMSGSC or VIEMSGSC file is read.
If the message is not found in one of the two files, the standard files are read.
This enables the four SCS files which contain all the modified messages to be defined without the necessity of duplicating the original files.

D7 - Map Selection (VIF900)

The maps are invoked by the modules with standard names, i.e. VIEnnnmm, nnn is the module number and mm is the number of the map. In the SCS environment the map name is changed to SCSnnnmm. If at least one of the SCSSYSHP or SCSCMSHP flags are on, the name of the map is changed to SCHnnnmm. The messages recalled by the maps can be found in

the appropriate files owing to the modifications to the DLN020 module (see message file selection).

E - Command Implementation

E1 - Sign on (CONNECT, DLN007, VIE801, VIE804)

The sign-on procedure has been implemented by coding an ad hoc CICS transaction called CONN.

The input format is as follows:

```
|-------------------------------------------------------|
|                 CCI                                   |
| CONNECT CNUCE   TIS      [ user-password user-name ]  |
|                 STAIRS                                |
|-------------------------------------------------------|
```

Abbreviated forms of CONNECT (CONN, CONNE, CONNEC) are accepted as valid input. Node indication is mandatory (i.e. CNUCE).

If erroneous parameters are entered, the user is given a list of the available transactions:

SCST for information retrieval using CCL
AQTL for information retrieval using STAIRS/VS - TLS
AQUA for information retrieval using STAIRS/VS

and is requested to enter the code for the transaction he requires.

Valid parameters are CCI, TLS or STAIRS, optionally

followed by the user password and name.
When one of these parameters is entered, the appropriate transaction code (optionally followed by user password and name) is placed in the TIOA from position TIOADBA and control is passed to the DLN007 module by means of an XCTL; the normal STAIRS or TLS sign-on procedure takes place.
If no parameter is entered, CCL is assumed by default.
In the DLN007 module, when the active transactions are CONN or SCST, the SCSIND (SCS environment active) and the SCSCONV (conversational input) bits are switched on in the SCSFLAG flag, and the SCSBSSN bit is swiched on in the SCSBASE (sign on in progress) flag.
The conversational input bit must be switched on before the user password and name can be accepted if they have not already been entered together with the transaction code. This bit is switched off before exiting from the DLN007 module.
THe SCSBSSN bit in the SCSBASE flag regulates the logical flow in the VIE801 module, therefore, the user accesses automatically to the EURO data base (which is not associated to a thesaurus) but is completely unaware of this.

At this point, sign on procedure is complete and the user can either issue a command, or just press the "enter"

key, thus passing the control to the VIE804 module and obtaining a map which displays the permitted commands.

E2 - BASE Command (SCS501, VIE801)

The BASE command is processed by the SCS501 module. This module examines the parameters given with the command, moves them to appropriate fields of the SCSTWA and turns the necessary flags on.

The command format is:

```
|-------------------------------------------------------|
| BASE        [ dbname ]                                |
|             [ ;P    = password ]                      |
|             [ ;TL   = thesaurus language  ]           |
|             [ ;THES = thesaurus name or LIST ]        |
|-------------------------------------------------------|
   or
|-------------------------------------------------------|
| BASE          ?                                       |
|-------------------------------------------------------|
```

Where:

dbname	name of database to be accessed(four characters)
P =	indicates the database password, if any (max 8 characters)
TL=	asks for a thesaurus in a specific language (by default E = English)
THES=	specifies the thesaurus name (four characters)
or	
THES=LIST	asks for a list of available thesauri
BASE ?	asks for the name of the currently active database

Note that no parameter can be entered if the data base name is missing. If no parameter is entered, a list of available databases is shown, and the user is asked to select one of them.

If THES=<thname> is missing and a thesaurus is associated to the database, this thesaurus is automatically selected.

If T=NONE is specified in the IECE, no thesaurus is selected.
The parameters NOFIND and QN are accepted but so far are without effect.

The input string is converted into ..CHANGE and the module then returns to DLN010, which calls VIE801.
VIE801 has been modified in order to mask prompting for parameters which have already been given in the BASE command and also to maintain a conversational input.
If essential parameters should be missing (e.g. the database name, the password or the thesaurus identification) a normal TIS dialog occurs.
The maps and the read routines have, however, been modified; the databases and the thesauri available are numbered so that they can be chosen either by their name or their order number in the output map.
When the user enters the command BASE ?, the name of the database in which the user is operating is displayed, the command driver returns to the VIE804 module and a list of all the possible commands is displayed.

E3 - FIND Command (SCS502, VIE803, DLN013)

The FIND command is examined by the SCS502 module. The command format is:

```
|-------------------------------------------------|
| FIND      STAIRS-SEARCH-like-query              |
|-------------------------------------------------|
```

As, at the present, no input analysis is made, the query must conform to the syntax of any normal STAIRS ..SEARCH query. A ..SET NEWPAGE=OFF and a ..SET DIRECT=ON are simulated. The query entered is moved into SCSTWA, and the string entered is changed into ..SEARCH.

The VIE803 module has been changed in order to mask the READ of the query which is taken from SCSTWA.

The DLN013 module has been changed so that the CCL query, its number and the number of the last STAIRS query can be written in temporary storage.

The query number appears at the top of the printout of the results.

E4 - SHOW Command (SCS503, DIN005)

The SHOW command is processed by the SCS503 module. The input is not positional. If a parameter should be entered more than once, the last value entered is held to be valid.

The command format is as follows:

Command	Parameter	Default value
SHOW	[S = qn]	last query
	[;R = n [TO m]]	1 TO 5
	[;I = k]	1
	[;F = p1;p2;...]	
	or	ALL
	[;Fn]	

Where:
qn = query number
n = first document number in the list to be displayed
m = last document number in the list to be displayed
k = increment document number (for skimming list)
pn = field label (= STAIRS paragraph or formatted field)
Fn = predefined format
where "n" is a number ranging from 1 to 23. These numbers are in correspondence with formats "D" to "Z" that can be defined using the DINPCDEF macro of STAIRS/VS-TLS.

The search statement number, record number and record increment number are all stored in SCSTWA, while the format is moved into a command area.

The table giving the correspondences between the STAIRS paragraph or formatted field names and the CCL

field labels is loaded and scanned against the field label list given in the format parameter. The appropriate conversion takes place, and the input string is converted into:

..BROWSE <search statement number><format>

and then processed as a normal STAIRS command. The DIN005 module has been modified to accept a document range and to allow the processing of the record increment number (skimming list).

E5 - PRINT Command (SCS504,DIN010,DLN005)

The PRINT command is processed by the SCS504 module. The input is not positional. If a parameter should be entered more than once, the last value entered is held to be valid.

The command format is as follows:

Command	Parameter	Default value
PRINT	[S = qn]	last query
	[;R = n [TO m]]	1 TO 50
	[;I = k]	1
	[;P = p1;p2;...]	
	or	ALL
	[;Pn]	
	[;D = OFFLINE]	
	or	D = OFFLINE
	[DISK = prtq]	

Where:

qn = query number
n = first document number in the list to be displayed
m = last document number in the list to be displayed
k = increment document number (for skimming list)
pn = field label (= STAIRS paragraph or formatted field)
Pn = predefined format
where "n" is a number ranging from 1 to 23. These numbers are in correspondence with formats "D" to "Z" that can be defined using the DINPCDEF macro of STAIRS/VS-TLS.
D = OFFLINE asks for offline printing of documents
DISK = prtq asks for printing of documents on private data set, identified as "prtq" in DCT

The search statement number, record number and record increment number are all stored in SCSTWA, while the

format is moved intc a command area.

The table giving the correspondences between the STAIRS paragraph or formatted fields names and the CCL field labels is loaded and scanned against the field label list given in the format parameter. The appropriate conversion takes place, and the input string is converted into:

..BROWSE <search statement number><format>

and then processed as a normal STAIRS command. The DLN005 module has been modified to mask the output and to simulate a "..PRINT" as input. The mcdule DLN010 has been modified to accept a document range and tc allow the processing of the record increment number (skimming list).

E6 - DEFINE Command (SCS507)

The command format is as follows:

Command	Parameter	Default value
DEFINE	[DL = char]	X'00'
	[;BS = char]	X'00'
	[;M = S(hort)/L(cng)]	LONG
	[;PAGE = (pl,ln,mg)]	24,24,0
	[;DEFAULT]	

Where:

DL defines the character used as "delete line" for TTY's

BS defines the character used as "backspace" for TTY's

M defines whether LONG or SHORT messages are desired

PAGE defines the "page size" as:

- pl = page length
- ln = number of lines per page
- mg = margin at the top of the page

The parameters are positional, the absence of a parameter is denoted by a comma. Missing parameters are calculated from the given values. The parentheses are mandatory. If only one parameter is given, the parentheses are not mandatory and the values are taken as pl, setting ln=pl and mg=0.

DEFAULT resets all parameters to their default values.

The ordering of the parameters is unimportant. Should a parameter be specified more than once, the last specification is taken as that valid.

E7 - SELECT Command (SCS512, DLN025)

The SELECT command is examined by the SCS512 module. The command format is:

SELECT	STAIRS-SELECT-like-query

This command only accepts STAIRS syntax. The query is saved in TWA and the module returns to DLN010 which performs a LINK to DIN025. In the CCL environment, DIN025 simulates a read operation taking the input string from TWA. If no BACK REFERENCE to a previous query is specified, the user is requested to press the ENTER to execute the select query. The results are displayed, with the number of the query given at the top as for the FIND command. The query is saved in temporary storage with a CCL key. DLN025 issues a read and, if in CCL environment, returns to DLN010 to examine the CCL command.

E8 - OWN Command (DLN002, DLN010)

The OWN command is recognised by the DLN002 or DLN010 modules. In both cases, the SCSIND and SCSCMRCV bits in the SCSFLAG are turned off and a normal STAIRS/TLS session can take place.

The command format is:

```
|-------------------------------------------------|
| OWN                                             |
|-------------------------------------------------|
```

In order to return to the CCL environment, the user should enter the command ..CCL.

E9 = STOP Command (DLNC20)

This command is directly handled by the DLNC20 module.

The command format is:

STOP

Whenever the STOP command is given, the input string is converted into ..OFF NOCONT and the user logs out of the system.

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