

File created: 15-Aug-88 18:05:13 {QV}<NOTECARDS>1.3L>LIBRARY>NCLOGGER.;6

changes to: (ADVISE NC.DeleteNoteCardInternal NC.MakeNoteCard NC.EditNoteCard NC.QuitCard NC.DeactivateCard
NC.ActivateCard NC.PutTitle NC.PutPropList NC.PutMainCardData NC.PutLinks NC.CardSaveFn
NC.AssignTitle NC.DelToLink NC.MakeLink NC.RelayoutBrowserCard NC.UpdateBrowserCard
NC.GetNewCard NC.AddCardType)

previous date: 26-Jul-88 10:18:47 {QV}<NOTECARDS>1.3L>LIBRARY>NCLOGGER.;5

Read Table: INTERLISP

Package: INTERLISP

Format: XCCS

::
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(RPAQQ **NCLOGGERCOMS**
((DECLARE%: DONTCOPY (PROP MAKEFILE-ENVIRONMENT NCLOGGER))

;;; This package instruments NoteCards so that entries are written to a log file whenever certain monitored events take place.

```
(GLOBALVARS NCLOG.GlobalLogInfo NCLOG.UIDHashArray NCLOG.HashArraySize NCLOG.UIDCtr)
(GLOBALVARS NC.OrigReadTable NCLOG.SavedCardObject)
(GLOBALVARS NCLOG.ListOfAllEventTypes NCLOG.ListOfEventTypes NCLOG.NumHashArray)
(INITVARS (NCLOG.UIDCtr 0)
  (NCLOG.HashArraySize 100)
  (NCLOG.UIDHashArray (NC.CreateUIDHashArray NCLOG.HashArraySize))
  (NCLOG.GlobalLogInfo NIL))
(INITVARS (NCLOG.NumHashArray (HASHARRAY NCLOG.HashArraySize))
  (NCLOG.ListOfAllEventTypes ' (GetNewCard MakeCard.Begin MakeCard.End EditCard.Begin EditCard.End
  SaveCard.Begin SaveCard.End QuitCard.Begin QuitCard.End
  AssignTitle.Begin AssignTitle.End CacheCard UncacheCard
  DelCard MakeLink DelLink PutMainCardData PutLinks PutTitle
  PutPropList RecomputeBrowser.Begin RecomputeBrowser.End
  RelayoutBrowser.Begin RelayoutBrowser.End AddCardType
  StartLogging))
  (NCLOG.ListOfEventTypes NCLOG.ListOfAllEventTypes))
(RECORDS NCLogInfo)
```

;;; External interface fns.

```
(FNS NCLOG.StartLogging NCLOG.StopLogging NCLOG.SuspendLogging NCLOG.LoggingOnP)
```

;;; Internal stuff

```
(FNS NCLOG.FetchLogInfoList NCLOG.SetLogInfoList NCLOG.LogEvent NCLOG.OpenLoggingStream
  NCLOG.WriteEventToLogStream NCLOG.WriteLogFileHeader NCLOG.SetEventTypesToLog NCLOG.UIDFromNum)
```

;;; Stuff to handle the printing of various NC objects.

```
(FNS NCLOG.CardObjectDEFPRINTFn NCLOG.LinkDEFPRINTFn NCLOG.NoteFileDEFPRINTFn NCLOG.UIDDEFPRINTFn
  NCLOG.SingleArgDEFPRINT NCLOG.NumFromUID NCLOG.StringFromUID)
```

;;; Here's the advice for the functions that we want to monitor.

;;; Operations that happen to an open notefile.

```
(ADVISE NC.EditNoteCard NC.QuitCard NC.MakeNoteCard NC.DeleteNoteCardInternal)
(ADVISE NC.ActivateCard NC.DeactivateCard)
(ADVISE NC.CardSaveFn NC.PutLinks NC.PutMainCardData NC.PutPropList NC.PutTitle)
(ADVISE NC.AssignTitle)
(ADVISE NC.MakeLink NC.DelToLink)
(ADVISE NC.UpdateBrowserCard NC.RelayoutBrowserCard)
(ADVISE NC.GetNewCard)
```

;;; Other operations.

```
(ADVISE NC.AddCardType))
```

(DECLARE%: DONTCOPY

(PUTPROPS **NCLOGGER MAKEFILE-ENVIRONMENT** (:PACKAGE "IL" :READTABLE "INTERLISP" :BASE 10))
)

;;; This package instruments NoteCards so that entries are written to a log file whenever certain monitored events take place.

LoggingFileName

```

    )
  of
    NCLogInfoRecord
  ]

  then (if (fetch (NCLogInfo LoggingOnFlg) of NCLogInfo)
    then

      (* * Logging is already on. Bail out.)

      NIL
    elseif (AND (SETQ LoggingStream (fetch (NCLogInfo LoggingStream) of NCLogInfo))
      (OPENP LoggingStream 'BOTH))
    then

      (* * Logging file exists and is open.)

      (replace (NCLogInfo LoggingOnFlg) of NCLogInfo with T)
      NCLogInfo
    else

      (* * There's no LoggingStream or it's closed, so make one using LoggingFileName.)

      (NCLOG.OpenLoggingStream NoteFile LoggingFileName LoggingStream NCLogInfo
        EventTypesToLog))
    else

      (* * This notefile has no logging happening; start one op.)

      (NCLOG.OpenLoggingStream NoteFile LoggingFileName NIL NIL EventTypesToLog))

```

(NCLOG.StopLogging

```

[LAMBDA (NoteFile NCLogInfo WriteLegendFlg) (* pmi%: "28-Oct-87 12:19")

  (* * Turn off notefile logging. Return the result of closing the LoggingStream.
  If WriteLegendFlg is non-nil, then write down a legend mapping numbers to UIDs.
  Write down the location of the start of the legend at the end of the file.)

  (* * pmi 10/28/87%: Changed to handle multiple NCLogInfo records per notefile.
  If a NCLogInfo is specified, then stop logging on it. If not, stop logging on all NCLogInfo records associated with this notefile.)

  (DECLARE (GLOBALVARS NC.OrigReadTable))
  (if (NCLOG.LoggingOnP NoteFile NCLogInfo)
    then (LET (NCLogInfoList LoggingStream)
      (NCLOG.SuspendLogging NoteFile NCLogInfo)
      [SETQ NCLogInfoList (MKLIST (OR NCLogInfo (NCLOG.FetchLogInfoList NoteFile)
        (for NCLogInfoRecord in NCLogInfoList
          collect (SETQ LoggingStream (fetch (NCLogInfo LoggingStream) of NCLogInfoRecord))
            (if (AND WriteLegendFlg LoggingStream (OPENP LoggingStream))
              then (LET ((StartLegendLoc (GETFILEPTR LoggingStream)))
                (for UID in (fetch (NCLogInfo NoticedUIDs) of NCLogInfoRecord)
                  do (PRINT (LIST (NCLOG.NumFromUID UID)
                    UID)
                    LoggingStream NC.OrigReadTable)))
                (PRINT StartLegendLoc LoggingStream NC.OrigReadTable)))
              (PROG1 (AND LoggingStream (OPENP LoggingStream)
                (CLOSEF LoggingStream))
                (replace (NCLogInfo LoggingStream) of NCLogInfoRecord with NIL)
                (replace (NCLogInfo NoticedUIDs) of NCLogInfoRecord with NIL)))]))

```

(NCLOG.SuspendLogging

```

[LAMBDA (NoteFile NCLogInfo) ; Edited 13-Jul-88 16:30 by pmi

  ;; Temporarily turn off the logging on NoteFile, but don't close LoggingStream.
  ;; pmi 10/27/87: Changed to handle multiple NCLogInfo records per notefile. If NCLogInfo is specified, suspend its logging. If not, suspend logging
  ;; on all NCLogInfo records associated with this notefile. Also changed so that a NIL NoteFile means suspend global logging.
  ;; pmi 7/13/88: Fixed LET variable initialization (added parentheses).

  (DECLARE (GLOBALVARS NCLOG.GlobalLogInfo))
  (LET ((NCLogInfoList (NCLOG.FetchLogInfoList NoteFile)))
    (if NoteFile
      then (if (NCLogInfo
        then (AND (MEMBER NCLogInfo NCLogInfoList)
          (replace (NCLogInfo LoggingOnFlg) of NCLogInfo with NIL))
        else (for NCLogInfoRecord in NCLogInfoList do (replace (NCLogInfo LoggingOnFlg) of
          NCLogInfoRecord
            with NIL)))
      else (replace (NCLogInfo LoggingOnFlg) of NCLOG.GlobalLogInfo with NIL))

```

(NCLOG.LoggingOnP

```

[LAMBDA (NoteFile NCLogInfo) (* pmi%: " 3-Nov-87 11:55")

  (* * Return non-nil if logging is turned on for NoteFile.)

  (* * pmi 10/27/87%: Changed to handle multiple NCLogInfo records per notefile.
  If no NCLogInfo is specified and there is at least one NCLogInfo record on this notefile with a non-NIL LoggingOnFlg, then T

```

is returned. Also, now returns the LoggingOnFlg for NCLOG.GlobalLogInfo if NoteFile is NIL.)

```
(DECLARE (GLOBALVARS NCLOG.GlobalLogInfo))
(LET ((NCLogInfoList (NCLOG.FetchLogInfoList NoteFile)))
  (if NoteFile
    then (if NCLogInfo
      then (AND (MEMBER NCLogInfo NCLogInfoList)
        (fetch (NCLogInfo LoggingOnFlg) of NCLogInfo))
      else (for NCLogInfoRecord in NCLogInfoList thereis (fetch (NCLogInfo LoggingOnFlg) of
        NCLogInfoRecord)))
    elseif (type? NCLogInfo NCLOG.GlobalLogInfo)
      then (fetch (NCLogInfo LoggingOnFlg) of NCLOG.GlobalLogInfo)
      else NIL))
)
```

;;; Internal stuff

(DEFINEQ

(NCLOG.FetchLogInfoList

[LAMBDA (NoteFile) (* pmi%: "23-Oct-87 15:03")

(* Fetch the NCLogInfo records from the NoteFile if any. If NoteFile is nil, then return the global one.)

(* pmi 10/23/87%: Was NCLOG.FetchLogInfo, changed to handle a list of NCLogInfos on each notefile.)

```
(DECLARE (GLOBALVARS NCLOG.GlobalLogInfo))
(COND
  ((type? NoteFile NoteFile)
    (NCP.NoteFileProp NoteFile 'NCLogInfoList))
  (NULL NoteFile)
    NCLOG.GlobalLogInfo)
(T NIL))
```

(NCLOG.SetLogInfoList

[LAMBDA (NoteFile NewLogInfoRecord) (* pmi%: "28-Oct-87 16:06")

(* Add this NewLogInfoRecord to the list of the NCLogInfo records for NoteFile.
If NoteFile is nil, then replace the global one.)

(* pmi 10/28/87%: Was NCLOG.SetLogInfo, changed to keep a list of NCLogInfos on a notefile, instead of just one.
Also now reset list of NCLogInfos to NIL if NewLogInfoRecord is NIL.)

```
(DECLARE (GLOBALVARS NCLOG.GlobalLogInfo))
(if (type? NoteFile NoteFile)
  then (if NewLogInfoRecord
    then (NCP.NoteFileAddProp NoteFile 'NCLogInfoList NewLogInfoRecord)
    else (NCP.NoteFileProp NoteFile 'NCLogInfoList NIL))
  NewLogInfoRecord
  elseif (NULL NoteFile)
    then (SETQ NCLOG.GlobalLogInfo NewLogInfoRecord)
    NewLogInfoRecord
  else NIL))
```

(NCLOG.LogEvent

[LAMBDA (EventType NoteFile EventArgs) ; Edited 11-Jul-88 17:09 by pmi

;; Log an event of type EventType happening to NoteFile with args EventArgs. NoteFile may be NIL if there's no notefile object. Can log either on
;; global logging stream or on Logging stream for given notefile or both.

;; pmi 10/27/87: Changed to handle multiple NCLogInfo records for a notefile.

;; pmi 7/11/88: Changed call to NCLOG.FetchLogInfo to NCLOG.FetchLogInfoList.

```
(LET ((EventTime (IDATE))
  GlobalLogInfo NoteFileLogInfo LoggingStream) ; Log on global logging stream if turned on.
  (if (AND (NCLOG.LoggingOnP NIL)
    (SETQ GlobalLogInfo (NCLOG.FetchLogInfoList NIL))
    (SETQ LoggingStream (fetch (NCLogInfo LoggingStream) of GlobalLogInfo))
    (OPENP LoggingStream 'OUTPUT))
    then (NCLOG.WriteEventToLogStream LoggingStream GlobalLogInfo EventType NoteFile EventTime
      (MKLIST EventArgs))) ; Log on local logging stream if turned on.
  (if (type? NoteFile NoteFile)
    then (for NoteFileLogInfo in (NCLOG.FetchLogInfoList NoteFile)
      when (AND (NCLOG.LoggingOnP NoteFile NoteFileLogInfo)
        (SETQ LoggingStream (fetch (NCLogInfo LoggingStream) of NoteFileLogInfo))
        (OPENP LoggingStream 'OUTPUT)
        (FMEMB EventType (fetch (NCLogInfo EventTypesToLog) of NoteFileLogInfo))))
      do (NCLOG.WriteEventToLogStream LoggingStream NoteFileLogInfo EventType NoteFile EventTime
        (MKLIST EventArgs))
```

(NCLOG.OpenLoggingStream

[LAMBDA (NoteFile LoggingFileName LoggingStream NCLogInfo EventTypesToLog)

(* pmi%: "28-Oct-87 17:57")

(* Creates a new NLogInfo record for this notefile and logging filename.
Opens a stream to the logging file and sets the appropriate fields of the NLogInfo record.
Returns the NLogInfo record, if successful.)

(* pmi 10/28/87%: Now takes EventTypesToLog argument which determines which set of event types will be logged.)

```
(if NLogInfo
  else (SETQ NLogInfo (create NLogInfo))
        (NCLOG.SetLogInfoList NoteFile NLogInfo))
(if (SETQ LoggingStream (OPENSTREAM (OR LoggingStream LoggingFileName)
                                     'BOTH))
    then (replace (NLogInfo LoggingStream) of NLogInfo with LoggingStream)
        (replace (NLogInfo LoggingOnFlg) of NLogInfo with T)
        (replace (NLogInfo LoggingFileName) of NLogInfo with (FULLNAME LoggingStream))
        (replace (NLogInfo EventTypesToLog) of NLogInfo with EventTypesToLog)
        (NCLOG.WriteLogFileHeader LoggingStream NoteFile)
        NLogInfo])
```

(NCLOG.WriteEventToLogStream

[LAMBDA (Stream NLogInfo EventType NoteFile EventTime EventArgs)

; Edited 5-Dec-87 20:02 by rht:

(* Write given event, time, NoteFile and args to stream. Temporarily change the UID print fn so that UIDs and other objects will get printed to the stream in a readable manner.)

```
(DECLARE (GLOBALVARS NC.OrigReadTable))
(RESETLST
 [RESETSAVE (NCLOG.SingleArgDEFPRINT (LIST 'CardObject (FUNCTION NCLOG.CardObjectDEFPRINTFn)
 [RESETSAVE (NCLOG.SingleArgDEFPRINT (LIST 'Link (FUNCTION NCLOG.LinkDEFPRINTFn)
 [RESETSAVE (NCLOG.SingleArgDEFPRINT (LIST 'NoteFile (FUNCTION NCLOG.NoteFileDEFPRINTFn)
 [RESETSAVE (NCLOG.SingleArgDEFPRINT (LIST 'UID (FUNCTION NCLOG.UIDDEFPRINTFn)
 (PRINT `(.EventTime ,EventTime ,NoteFile ,@EventArgs)
   Stream NC.OrigReadTable)))])
```

(NCLOG.WriteLogFileHeader

[LAMBDA (LoggingStream NoteFile)

(* rht%: "18-Mar-87 16:00")

(* Write header info to the logging file for this notefile. Currently, this is just an event having type StartLogging.)

```
(NCLOG.LogEvent 'StartLogging NoteFile (AND (type? NoteFile NoteFile)
                                             (fetch (NoteFile FullFileName) of NoteFile])
```

(NCLOG.SetEventTypesToLog

[LAMBDA (NoteFile NLogInfo EventTypesToLog)

(* pmi%: "28-Oct-87 11:20")

(* pmi 10/28/87%: Created to change the EventTypesToLog field in the NLogInfo record of NoteFile.
If EventTypesToLog is NIL, then change the EventTypesToLog fields of all NLogInfo records associated with NoteFile.
If NoteFile is NIL, change the EventTypesToLog field of the global NLogInfo record.
If EventTypesToLog is NIL, then use NCLOG.ListOfEventTypes.)

```
(DECLARE (GLOBALVARS NCLOG.GlobalLogInfo NCLOG.ListOfEventTypes))
(LET ((NLogInfoList (NCLOG.FetchLogInfoList NoteFile)))
  (OR EventTypesToLog (SETQ EventTypesToLog NCLOG.ListOfEventTypes))
  (if NoteFile
    then (if NLogInfo
            then (for NLogInfoRecord in NLogInfoList when (EQ NLogInfoRecord NLogInfo)
                    do (replace (NLogInfo EventTypesToLog) of NLogInfo with EventTypesToLog))
            else (for NLogInfoRecord in NLogInfoList do (replace (NLogInfo EventTypesToLog) of NLogInfo
                                                                with EventTypesToLog)))
    else (replace (NLogInfo EventTypesToLog) of NCLOG.GlobalLogInfo with EventTypesToLog])
```

(NCLOG.UIDFromNum

[LAMBDA (Num)

(* pmi%: "23-Nov-87 12:06")

(* Translate an integer into a UID using a global hash array.)

```
(DECLARE (GLOBALVARS NCLOG.NumHashArray))
(GETHASH Num NCLOG.NumHashArray])
```

)

;;; Stuff to handle the printing of various NC objects.

(DEFINEQ

(NCLOG.CardObjectDEFPRINTFn

[LAMBDA (Card Stream)

(* rht%: "11-Mar-87 22:27")

(* This is called when PRINT, PRIN1, etc. try to print instance of Card datatype.
Only meant to be used under NCLOG.WriteEventToLogStream.)

```
(if (AND Stream (NEQ Stream 'T)
      (NOT (IMAGESTREAMP Stream)))
  then (PRINT (fetch (Card UID) of Card)
          Stream NC.OrigReadTable)
  T
else NIL))
```

(NCLOG.LinkDEFPRINTFn

[LAMBDA (Link Stream)

(* rht%: "11-Mar-87 22:28")

(* This is called when PRINT, PRIN1, etc. try to print instance of Link datatype.
Only meant to be used under NCLOG.WriteEventToLogStream.)

```
(if (AND Stream (NEQ Stream 'T)
      (NOT (IMAGESTREAMP Stream)))
  then (PRINT (fetch (Link UID) of Link)
          Stream NC.OrigReadTable)
  T
else NIL))
```

(NCLOG.NoteFileDEFPRINTFn

[LAMBDA (NoteFile Stream)

(* rht%: "11-Mar-87 22:28")

(* This is called when PRINT, PRIN1, etc. try to print instance of NoteFile datatype.
Only meant to be used under NCLOG.WriteEventToLogStream.)

```
(if (AND Stream (NEQ Stream 'T)
      (NOT (IMAGESTREAMP Stream)))
  then (PRINT (fetch (NoteFile UID) of NoteFile)
          Stream NC.OrigReadTable)
  T
else NIL))
```

(NCLOG.UIDDEFPRINTFn

[LAMBDA (UID Stream)

(* rht%: "18-Mar-87 17:25")

(* This is called when PRINT, PRIN1, etc. try to print instance of UID datatype.
Only meant to be used under NCLOG.WriteEventToLogStream.)

```
(DECLARE (GLOBALVARS NC.OrigReadTable))
(if (AND Stream (NEQ Stream 'T)
      (NOT (IMAGESTREAMP Stream)))
  then (LET [(NCLogInfo (CAR (NLSETQ (STKARG 'NCLogInfo 'NCLOG.WriteEventToLogStream)
                                     (if NCLogInfo
                                         then (pushnew (fetch (NCLogInfo NoticedUIDs) of NCLogInfo)
                                                           UID)))
              (PRINT (NCLOG.NumFromUID UID)
                    Stream NC.OrigReadTable)
              T
            else NIL])
  else NIL))
```

(NCLOG.SingleArgDEFPRINT

[LAMBDA (TypeAndFn)

(* rht%: "11-Mar-87 17:03")

(* An incredibly dorky hack to get around the brain-damaged way RESETLST works.
Need this because though DEFPRINT returns the old value, it takes two args thus is unsuitable for RESETSAVE.
UGH!!)

```
(LIST (CAR TypeAndFn)
      (DEFPRINT (CAR TypeAndFn)
                (CADR TypeAndFn)))
```

(NCLOG.NumFromUID

[LAMBDA (UID)

(* pmi%: "14-Dec-87 19:15")

(* Translate the UID into an integer using a global hash array.
This is to save space on the logging file.)

(* pmi 11/24/87%: Added NCLOG.NumHashArray for getting UID's back from numbers later.)

```
(DECLARE (GLOBALVARS NCLOG.UIDHashArray NCLOG.NumHashArray NCLOG.UIDCtr))
(if (GETHASH UID NCLOG.UIDHashArray)
  else (PUTHASH UID (add NCLOG.UIDCtr 1)
                  NCLOG.UIDHashArray)
      (PUTHASH NCLOG.UIDCtr UID NCLOG.NumHashArray))
```

(NCLOG.StringFromUID

[LAMBDA (UID)

(* rht%: "11-Mar-87 15:59")

(* Return an atom made from the numbers making up UID separated by commas.)

```

(CONCAT 'U (ffetch (UID UID0) of UID)
',%,
(ffetch (UID UID1) of UID)
',%,
(ffetch (UID UID2) of UID)
',%,
(ffetch (UID UID3) of UID)
',%,
(ffetch (UID UID4) of UID)
',%,
(ffetch (UID UID5) of UID)
',%,
(ffetch (UID UID6) of UID])
)

```

;;; Here's the advice for the functions that we want to monitor.

;;; Operations that happen to an open notefile.

```

[XCL:REINSTALL-ADVICE 'NC.EditNoteCard :BEFORE ' ([:LAST (NCLOG.LogEvent 'EditCard.Begin (ffetch (Card NoteFile)
                                                                    of Card)
                                                                    Card)))
:AFTER
' ([:LAST (NCLOG.LogEvent 'EditCard.End (ffetch (Card NoteFile) of Card)
Card]

[XCL:REINSTALL-ADVICE 'NC.QuitCard :AROUND ' ([:LAST (LET* ((ClosingCard (NC.CoerceToCard CardIdentifier))
(ClosingCardNoteFile (ffetch (Card NoteFile)
of ClosingCard)))
(NCLOG.LogEvent 'QuitCard.Begin ClosingCardNoteFile
(LIST ClosingCard Don'tDeactivateFlg))
*
(NCLOG.LogEvent 'QuitCard.End ClosingCardNoteFile
(LIST ClosingCard Don'tDeactivateFlg]

[XCL:REINSTALL-ADVICE 'NC.MakeNoteCard :BEFORE ' ([:LAST (NCLOG.LogEvent 'MakeCard.Begin NoteFile
(LIST NoteCardType Title NoDisplayFlg]
:AFTER
' ([:LAST (NCLOG.LogEvent 'MakeCard.End NoteFile (LIST NoteCardType Title (NC.CoerceToCard !VALUE]

[XCL:REINSTALL-ADVICE 'NC.DeleteNoteCardInternal :BEFORE ' ([:LAST (NCLOG.LogEvent 'DelCard (ffetch (Card NoteFile)
                                                                    of Card)
                                                                    (LIST Card (NC.FetchTitle Card]

(READWISE NC.EditNoteCard NC.QuitCard NC.MakeNoteCard NC.DeleteNoteCardInternal)

[XCL:REINSTALL-ADVICE 'NC.ActivateCard :BEFORE ' ([:LAST (NCLOG.LogEvent 'CacheCard (ffetch (Card NoteFile)
                                                                    of Card)
                                                                    Card]

[XCL:REINSTALL-ADVICE 'NC.DeactivateCard :BEFORE ' ([:LAST (NCLOG.LogEvent 'UncacheCard (ffetch (Card NoteFile)
                                                                    of Card)
                                                                    Card]

(READWISE NC.ActivateCard NC.DeactivateCard)

[XCL:REINSTALL-ADVICE 'NC.CardSaveFn :BEFORE ' ([:LAST (LET ((Card (NC.CoerceToCard WindowOrID)))
(NCLOG.LogEvent 'SaveCard.Begin (ffetch (Card NoteFile)
of Card)
Card]
:AFTER
' ([:LAST (LET ((Card (NC.CoerceToCard WindowOrID)))
(NCLOG.LogEvent 'SaveCard.End (ffetch (Card NoteFile) of Card)
Card]

[XCL:REINSTALL-ADVICE 'NC.PutLinks :BEFORE ' ([:LAST (NCLOG.LogEvent 'PutLinks (ffetch (Card NoteFile) of Card)
Card]

[XCL:REINSTALL-ADVICE 'NC.PutMainCardData :BEFORE ' ([:LAST (NCLOG.LogEvent 'PutMainCardData (ffetch (Card NoteFile)
                                                                    of Card)
                                                                    Card]

[XCL:REINSTALL-ADVICE 'NC.PutPropList :BEFORE ' ([:LAST (NCLOG.LogEvent 'PutPropList (ffetch (Card NoteFile)
                                                                    of Card)
                                                                    Card]

[XCL:REINSTALL-ADVICE 'NC.PutTitle :BEFORE ' ([:LAST (NCLOG.LogEvent 'PutTitle (ffetch (Card NoteFile) of Card)
Card]

(READWISE NC.CardSaveFn NC.PutLinks NC.PutMainCardData NC.PutPropList NC.PutTitle)

[XCL:REINSTALL-ADVICE 'NC.AssignTitle :BEFORE ' ([:LAST (LET ((Card (NC.CoerceToCard CardIdentifier)))
(NCLOG.LogEvent 'AssignTitle.Begin

```

```

                                (fetch (Card NoteFile) of Card)
                                (LIST Card (NC.FetchTitle Card])

:AFTER
' ( (:LAST (LET ((Card (NC.CoerceToCard CardIdentifier)))
                (NCLOG.LogEvent 'AssignTitle.End (fetch (Card NoteFile) of Card)
                (LIST Card (NC.FetchTitle Card])

(READWISE NC.AssignTitle)

[XCL:REINSTALL-ADVICE 'NC.MakeLink :AFTER ' ( (:LAST (LET [(NoteFile (fetch (Card NoteFile)
                                of (OR (NC.CoerceToCard SourceCard)
                                (NC.CoerceToCard Window])
                (if (type? Link !VALUE)
                    then (NCLOG.LogEvent 'MakeLink NoteFile
                        (LIST !VALUE (fetch (Link SourceCard)
                                of !VALUE)
                                (fetch (Link DestinationCard)
                                of !VALUE)
                                (fetch (Link Label) of !VALUE)
                                (fetch (Link AnchorMode)
                                of !VALUE)
                                (fetch (Link DisplayMode)
                                of !VALUE)))
                    else (NCLOG.LogEvent 'MakeLink NoteFile !VALUE]

[XCL:REINSTALL-ADVICE 'NC.DelToLink :BEFORE
' ( (:LAST (LET [(NoteFile (fetch (Card NoteFile) of (fetch (Link SourceCard) of Link]
                (if (type? Link Link)
                    then (NCLOG.LogEvent 'DelLink NoteFile (LIST Link (fetch (Link SourceCard) of Link)
                                (fetch (Link DestinationCard) of Link)
                                (fetch (Link Label) of Link)
                                (fetch (Link AnchorMode) of Link)
                                (fetch (Link DisplayMode) of Link)))
                    else (NCLOG.LogEvent 'DelLink NoteFile Link]

(READWISE NC.MakeLink NC.DelToLink)

[XCL:REINSTALL-ADVICE 'NC.UpdateBrowserCard :BEFORE ' [ (:LAST (LET ((Card (NC.CoerceToCard Window)))
                                (NCLOG.LogEvent 'RecomputeBrowser.Begin
                                (fetch (Card NoteFile) of Card)
                                Card]

:AFTER
' ( (:LAST (LET ((Card (NC.CoerceToCard Window)))
                (NCLOG.LogEvent 'RecomputeBrowser.End (fetch (Card NoteFile) of Card)
                Card]

[XCL:REINSTALL-ADVICE 'NC.RelaytoBrowserCard :BEFORE ' [ (:LAST (LET ((Card (NC.CoerceToCard Window)))
                                (NCLOG.LogEvent 'RelaytoBrowser.Begin
                                (fetch (Card NoteFile) of Card)
                                Card]

:AFTER
' ( (:LAST (LET ((Card (NC.CoerceToCard Window)))
                (NCLOG.LogEvent 'RelaytoBrowser.End (fetch (Card NoteFile) of Card)
                Card]

(READWISE NC.UpdateBrowserCard NC.RelaytoBrowserCard)

[XCL:REINSTALL-ADVICE 'NC.GetNewCard :AFTER ' ( (:LAST (NCLOG.LogEvent 'GetNewCard NoteFile (LIST !VALUE Type]

(READWISE NC.GetNewCard)

;;; Other operations.

[XCL:REINSTALL-ADVICE 'NC.AddCardType :BEFORE ' ( (:LAST (NCLOG.LogEvent 'AddCardType NIL TypeName]

(READWISE NC.AddCardType)

(PUTPROPS NCLOGGER COPYRIGHT ("Xerox Corporation" 1987 1988))

```

FUNCTION INDEX

NCLOG.CardObjectDEFPRINTFn	5	NCLOG.OpenLoggingStream	4	NCLOG.SuspendLogging	3
NCLOG.FetchLogInfoList	4	NCLOG.SetEventTypesToLog	5	NCLOG.UIDDEFPRINTFn	6
NCLOG.LinkDEFPRINTFn	6	NCLOG.SetLogInfoList	4	NCLOG.UIDFromNum	5
NCLOG.LogEvent	4	NCLOG.SingleArgDEFPRINT	6	NCLOG.WriteEventToLogStream	5
NCLOG.LoggingOnP	3	NCLOG.StartLogging	2	NCLOG.WriteLogFileHeader	5
NCLOG.NoteFileDEFPRINTFn	6	NCLOG.StopLogging	3		
NCLOG.NumFromUID	6	NCLOG.StringFromUID	6		

ADVICE INDEX

NC.ActivateCard	7	NC.DelToLink	8	NC.PutMainCardData	7
NC.AddCardType	8	NC.EditNoteCard	7	NC.PutPropList	7
NC.AssignTitle	7	NC.GetNewCard	8	NC.PutTitle	7
NC.CardSaveFn	7	NC.MakeLink	8	NC.QuitCard	7
NC.DeactivateCard	7	NC.MakeNoteCard	7	NC.RelayoutBrowserCard	8
NC.DeleteNoteCardInternal	7	NC.PutLinks	7	NC.UpdateBrowserCard	8

VARIABLE INDEX

NCLOG.GlobalLogInfo	2	NCLOG.ListOfEventTypes	2	NCLOG.UIDHashArray	2
NCLOG.HashArraySize	2	NCLOG.NumHashArray	2	NCLOGGERCOMS	1
NCLOG.ListOfAllEventTypes	2	NCLOG.UIDCtr	2		

RECORD INDEX

NLogInfo	2
----------------	---

PROPERTY INDEX

NCLOGGER	1
----------------	---
