

3/29/82

Dan -

From the desk of ... Teresa Wai

Enclosed is your 9 Series
Master - card tapes:

Card deck
6 Masters at 9T, 800 BPI

2 ↓ at 9T, 1600 BPI

1 + (1 back-up) UTIL tape at 9T, 1600 BPI

1 Master Tape to Card Deck
Reproduction Procedure (1 Pg)

1 Software Library Utility
Programme documentation (17 Pages)

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Honeywell

SOFTWARE LIBRARY

MASTER TAPE TO CARD DECK REPRODUCTION PROCEDURE

In order to use the Software Library Master Tapes the user must do the following:

1. Create account :UTIL. Since all labeled tapes were created from :UTIL I would recommend the user continue to use this account name.
2. Copy all files from tape #UTIL to account :UTIL. This tape contains the load modules SLIP, SLPUNCH, SLUPDATE and their ROMS.
3. Build the MTRNMFILE using the LIST option of the SLUPDATE program.
4. Card decks may now be punched and verified using the SLPUNCH program as described in the documentation.

SOFTWARE LIBRARY UTILITY PROCESSORS

OVERVIEW

The Honeywell Software Library at LADC has approximately 1750 computer programs which are available to customers on request. They were all originally in card deck form and were created on various Xerox computers such as the 925, 9300, Sigma 2, 3, 7, 9, etc. They are in various forms such as binary and symbolic programming code. In many cases JCL exists as part of the deck.

These card decks are now maintained as files on magnetic tape. The tapes are standard Xerox labeled tapes which are created and updated using two processors called SLIP and SLUPDATE. Card decks and paper tapes are punched and verified using a processor called SLPUNCH.

In order to read these various types of card decks through a Xerox Sigma 7 card reader and to maintain them on magnetic tape, all cards are read in as 120 byte binary records. The card decks are also read in backwards to prevent problems associated with having JCL as part of the card deck. Each file is inverted as it is copied to tape so the finished master tape has the file records in correct order for later processing.

Access to the files on tape is by Program Catalog Number (PCN). These Catalog Numbers are maintained in a disk file called MTRNMFILE which is built by the processor SLUPDATE or SLIP. The records in the MTRNMFILE are in order by the 12 digit Catalog Numbers as are the files on tape. Each record in the MTRNMFILE contains the Catalog Number, the INSN of the tape on which the file resides, and a record count of the file.

SOFTWARE LIBRARY INVERT PROCESSOR

SLIP

The Software Library Invert Processor (SLIP) is a utility program that will perform the task of taking Software Library Master Program decks card-to-tape. It will order these program decks on tape according to catalog number, element number, and version number. This task is performed in three steps.

1. CARD TO DISK
2. VERIFY
3. COPY TO TAPE

The first two steps require the presence of a Catalog Card at the end of each deck to be taken card-to-tape. These two steps also require that the card decks be read in backwards. This will allow cards containing a "!" in column 1 to be read in as part of a card deck. The only restrictions are that no cards within a deck contain a "!" in column 30 and no cards contain a "**" in columns 79-80. The disk file records are inverted as they are being copied to tape, thus the files on tape will not be backwards.

As the card-to-disk job is running a file called MTRNMFIL is created (or updated if it already exists). Each time a Catalog Card is encountered a record is written in the MTRNMFIL which contains a 12 digit Program Catalog Number (PCN). Thus, a record is kept of all card decks copied to disk. The MTRNMFIL is used during the verify pass and also the copy-to-tape pass.

SOFTWARE LIBRARY INVERT PROCESSOR

I. CARD_TO_DISK

1. A Catalog Card for each deck to be copied to disk must be punched in the following format:

Cols. 1-2 **
Cols. 3-14 A 12 digit alphanumeric Catalog Number
including a dash (-) between the Principal Catalog
Number and the Element Number and Version, e.g.

704001-84A00

2. The Catalog Card should be placed with the card deck in such a way that the Catalog Card will be read in first. The Catalog Card must not be read in backwards. The deck which follows the Catalog Card must be turned around so that it is read in backwards. The Catalog Card and deck which follows must both have their 12 edges in the same direction.
3. Punch a SLIP command card as follows:
Cols. 1-12 CARD TO DISK
4. The JCL necessary to perform the card-to-disk operation is as follows:

```
!JOB  
!LIMIT (CORE,4),(TIME,60),(RERUN),(ORDER)  
!RUN (LMN,SLIP)  
!DATA  
CARD TO DISK  
!BIN  
(card decks with Catalog Cards)  
!BCD  
!FIN
```

5. A line printer listing of all files copied to disk is generated as the job is running; therefore, if the system crashes during a card-to-disk operation the line printer listing will indicate the last deck successfully copied to disk. The job should be restarted with the deck immediately following the last one listed on the line printer.

SOFTWARE LIBRARY INVERT PROCESSOR

II. VERIEY

1. Read in cards using the same JCL described in the card-to-disk instructions. Change the command card as shown below.

Cols. 1-6 VERIFY

2. At the end of each verify pass the MTRNMFIE will be listed on the line printer. The listing will show which card decks verified and which ones did not.

SOFTWARE LIBRARY INVERT PROCESSOR

III. COPY_IO_TAPE

The copy-to-tape function of the SLIP processor will read each record of the MTRNMFILE. It will determine if there is a disk file present in the running account which matches the file name in the MTRNMFILE record. If a file is found it will be inverted and copied to tape. If no file is found the program will skip to the next record in the MTRNMFILE.

1. Punch a SLIP command card as follows:

Cols. 1-12 COPY TO TAPE

2. The JCL necessary to perform the copy-to-tape operation is as follows:

```
!JOB
!LIMIT (CORE,4),(TIME,60),(QT,1)
!RUN (LMN,SLIP)
!DATA
COPY TO TAPE
RESTART (The RESTART command goes here if necessary to
         restart, otherwise it is omitted.)
!FIN
```

3. The program will issue 2 prompts to the operator's console. The prompts below are in quotes followed by a brief explanation.

"REEL NO. (LNNN)="

Enter a 4 digit reel number for the first output tape. The first character must be a letter in the range A-Z. The second through fourth characters must be numbers in the range 000-999. If invalid characters are detected, or less than four characters are entered, a "??" will be printed on the operator's console, followed again by the above prompt.

"WAS YOUR KEY-IN CORRECT (Y/N)?"

Enter a "Y" for YES and processing will continue. Enter an "N" for NO and the request for a reel number will be repeated.

SOFTWARE LIBRARY INVERT PROCESSOR

4. If the job should abort for any reason it may be restarted by adding a RESTART command after the COPY TO TAPE command. Copy the MTRNMFILE to the line printer to determine the last file successfully copied to tape. This can be determined by checking the column to the right of the file name. If the output tape serial number is present the entire file was successfully copied to tape. Enter the last good Catalog Number when the following prompt is issued:

"LAST CATALOG NUMBER="

The program will skip to the end of the specified file and continue from that point.

5. At the end of the copy-to-tape pass the MTRNMFILE will be copied to the line printer.

SOFTWARE LIBRARY INVERT PROCESSOR

PROCESSOR MESSAGES

All SLIP processor messages not previously mentioned are listed below. The messages are in quotes and followed by a brief explanation.

"!BIN OR FIRST CATALOG CARD MISSING"

This indicates that the first card read following the !BIN card was not a Catalog Card (** in Cols. 1-2) or the !BIN card was not present.

"INVALID COMMAND --- JOB ABORTED"

The command following the !DATA card was not one of the following:

- 1) CARD TO DISK
- 2) VERIFY
- 3) COPY TO TAPE

"INVALID CHARACTER IN CATALOG CARD --- JOB ABORTED"

A Catalog Card contained a character that was not one of the following:

- 1) 0 thru 9
- 2) A thru Z
- 3) -

"BLANK CHARACTER IN CATALOG CARD --- JOB ABORTED"

A blank character was found in the PCN of a Catalog Card. Blanks are not permitted.

"DISK FILE DOES NOT EXIST"

An attempt was made to verify a card deck against a nonexistent disk file.

"VERIFY ERROR"

The disk file does not match the card deck.

SOFTWARE LIBRARY INVERT PROCESSOR

"VERIFIED OK"

The disk file matches the card deck.

"FILE TO START AFTER NOT ON TAPE"

The Catalog Number given in response to the restart prompt is not in the MTRNMFIL.

SOFTWARE LIBRARY PUNCH PROCESSOR

SLPUNCH

The Software Library Punch Processor (SLPUNCH) performs the task of punching and verifying cards and paper tape from Software Library Master Tapes. Files selected from tape are first copied to permanent files on disk and then copied to either the card punch or paper tape punch. Using disk files enables the operator to punch and verify additional copies of a program deck without the necessity of mounting a tape more than once. Any number of Program Catalog Numbers (PCN's) may be entered by the operator through the operator's console as well as any number of copies of each PCN. Each card deck punched out will have a header card at the end of the deck containing the PCN, copy number, and card count. These headers are punched out backwards and are used during the verification pass. They also aid the operator in separating the individual decks.

SOFTWARE LIBRARY PUNCH PROCESSOR

I. PUNCHING CARDS OR PAPER TAPE

1. To punch cards or paper tape the MTRNMFIL must be present in the running account. Use the following JCL:

```
!JOB
!LIMIT (CORE,4),(TIME,15),(QT,1),(PP,1),(PR,1)
!RUN (LMN,SLPUNCH)
!FIN
```

2. Several prompts will be issued to the operator's console which require key-ins. The prompts below are enclosed in quotes.

"PUNCH PAPER TAPE (Y/N)?"

Enter a 'Y' for YES if you want to punch paper tape. The paper tape punch must be ready. Enter an 'N' for NO if you want to punch cards.

"PUNCH FROM TAPE OR DISK (T/D)?"

Enter a 'T' if files are to be selected from tape. Enter a 'D' if the files are already on disk. If a 'D' is entered and a file is not found on disk, the tape will be requested.

"ENTER CATALOG NUMBER:"

Enter the 12 digit Program Catalog Number (PCN) of the file to be punched, e.g. 704000-84400.

"ENTER NUMBER OF COPIES:"

Enter the number of copies desired of the PCN. If a 0 is entered the file will be copied from tape to disk and nothing will be punched.

"WERE KEY-INS CORRECT (Y/N)?"

Enter a 'Y' for YES and processing will continue. Enter an 'N' for NO and the last PCN will be ignored.

"ARE THERE ADDITIONAL REQUESTS (Y/N)?"

If more PCN's are to be entered, answer with a 'Y' for YES. If punching is to commence answer with an 'N' for NO. Mount the requested tape.

SOFTWARE LIBRARY PUNCH PROCESSOR

II. VERIFYING_CARD_DECKS

1. To verify card decks remove the CP-V monitor generated header cards at the beginning of the deck and the !EOD at the end. The remaining card decks each have a Catalog Card at the end. The Catalog Card is punched out backwards and must be the first card read of each deck during the verification pass. The Catalog Cards are in the following format as viewed from the backside and reading from left to right.

Cols.	1-2	3-14	49-56	63-64	69-80
	**	PCN	CARD COUNT	COPY NUMBER	LACED

2. Using the following JCL place the card decks after the !BIN card. The cards must be turned around such that the first card read following the !BIN is a Catalog Card. The SLPUNCH command VERIFY must follow the !DATA card.

```
!JOB
!LIMIT (CORE,4),(TIME,15),(RERUN),(PP,1),(PR,1)
!RUN (LMN,SLPUNCH)
!DATA
VERIFY
!BIN
card decks (backwards)
!BCD
!FIN
```

3. The success or failure of the verification pass on each card deck will be indicated on the line printer. As shown in the following example 3 card decks were punched for PCN 704000-84800. Copies 1 and 3 were good and copy 2 was bad. Each copy may be identified by the COPY NUMBER punched in columns 63-64 of the Catalog Card.

704000-84800	COPY	1	VERIFIED OK
704000-84800	COPY	2	VERIFY ERROR
704000-84800	COPY	3	VERIFIED OK

SOFTWARE LIBRARY PUNCH PROCESSOR

III. VERIFYING PAPER TAPES

1. To verify paper tapes the SLPUNCH processor is used with the command VERIFY PAPER TAPE. The processor initially enters a WAIT state to allow the operator time to set up the paper tape reader. To continue processing the operator must interrupt the job with the INT key-in. Results of each verification pass will be printed on the operator's console. At the end of each verification pass the operator will be given the choice of continuing or exiting the job. The JCL necessary to verify paper tapes is as follows:

```
!JOB
!LIMIT (CORE,4),(TIME,15),(RERUN),(PP,1),(PR,1)
!RUN (LMN,SLPUNCH)
!DATA
VERIFY PAPER TAPE
!FIN
```

2. At the beginning of each verification pass the following message will be sent to the operator's console:

```
"SET UP READER TO VERIFY NEXT TAPE"
"INTERRUPT WHEN READY"
```

When the paper tape reader is made READY key-in:

```
!INT,sysid
```

3. When the job is interrupted the following prompt will be issued:

```
"ENTER A NEW CATALOG NUMBER? (Y/N)?"
```

If an 'N' is entered for NO, the processor will use the last PCN given; thus if several tapes for the same PCN are to be verified, the PCN need not be keyed in again. If 'N' is entered and no PCN was previously given the job will abort with a 1406 error. Key-in a 'Y' for YES and the processor will send the following prompt:

```
"ENTER CATALOG NUMBER:"
```

Key-in the 12 digit PCN of the tape to be verified, e.g. 704000-84A00.

SOFTWARE LIBRARY PUNCH PROCESSOR

4. If an error is encountered while verifying a tape the following message will be transmitted to the operator's console:

"VERIFY ERROR ON CAT. NO. (PCN)"

or, if no errors are encountered:

"(PCN) VERIFIED OK"

5. At the end of a verification pass the operator will be allowed to continue or exit the job. The following prompt will be sent to the operator's console:

"QUIT OR CONTINUE (Q/C)?"

Enter a "Q" for QUIT and the program will exit. Enter a "C" for CONTINUE and the program will start again with step 2 above.

SOFTWARE LIBRARY UPDATE PROCESSOR

SLUPDATE

The SLUPDATE processor will perform the file maintenance task for Software Library Master Tapes. It has two main functions which are invoked separately with the processor commands UPDATE and LIST. In the UPDATE mode a new set of Master Tapes may be created while adding new files, and replacing and deleting old files as required. In the LIST mode each record of every file on the Master Tape is counted. This count of the file records plus the name of the tape file and the INSN of the tape on which it resides is written to a file called MTRNMFIL. The MTRNMFIL is created as a keyed file on disk with each key being the 12 digit Catalog Number (PCN) of a Software Library program.

There are 2 additional disk files which are used by the SLUPDATE processor. They are called MDELFILE which is created by the user and contains the names of files to be deleted during an update pass, and DEL1 which is a sorted version of the MDELFILE and is created by SLUPDATE.

Before using the SLPUNCH processor to punch cards and before an update pass may be made using the SLUPDATE processor, the MTRNMFIL must be created.

SOFTWARE LIBRARY UPDATE PROCESSOR

COMMANDS

I. LIST

If the MTRNMFIL is present in the running account and SLUPDATE is run using the LIST command the MTRNMFIL will be updated. If no MTRNMFIL is present then a new one is created.

1. The JCL necessary to create or update the MTRNMFIL using the LIST command is as follows:

```
!JOB
!LIMIT (CORE,4),(TIME,60),(QT,1),(RERUN)
!RUN (LMN,SLUPDATE)
!DATA
LIST
!FIN
```

2. The program will issue 2 prompts to the operators console which require operator key-ins.

"REEL NUMBER OF I/P MASTER"

Enter the 4 digit reel number of the first Master Tape.

"WERE KEY-INS CORRECT (Y/N)?"

Enter a "Y" for YES and processing will begin. Enter an "N" for NO and the prompts will be repeated.

SOFTWARE LIBRARY UPDATE PROCESSOR

II. UPDATE

The UPDATE command will build a new set of Master Tapes from a previous set of Master Tapes and a set of Update Tapes. It will allow obsolete files to be deleted if these files are named in the MDELFILE.

1. The JCL necessary to perform an update pass is as follows:

```
!JOB
!LIMIT (CORE,4),(TIME,60),(PT,3),(RERUN)
!RUN (LMN,SLUPDATE)
!DATA
UPDATE
!FIN
```

2. The program will issue 4 prompts to the operators console which require operator key-ins.

"REEL NUMBER OF I/P MASTER:"

Enter the 4 digit reel number of the first Master Tape.

"REEL NUMBER OF UPDATE TAPE:"

Enter the 4 digit reel number of the first Update Tape or if no Update Tape is present press C/R.

"ENTER FIRST REEL NUMBER OF O/P MASTER:"

Enter a 4 digit starting reel number. The first character must be alphabetic. The last three characters must be numeric.

"WERE KEY-INS CORRECT (Y/N)?"

Enter a "Y" for YES and processing will begin. Enter an "N" for NO and the prompts will be repeated.

3. If files are to be deleted they must be named in the MDELFILE which must be in the running account. The 12 digit PCN of each file to be deleted must be in columns 1-12 with only one PCN for each line. The MDELFILE is sorted at run time to another file called DEL1 thus eliminating any need for the MDELFILE to be in order.

SOFTWARE LIBRARY UPDATE PROCESSOR

PROCESSOR MESSAGES

All messages associated with the SLUPDATE processor and not previously mentioned are listed below. The messages are in quotes. A brief explanation follows each message.

"INVALID COMMAND --- JOB ABORTED"

No LIST or UPDATE command in JCL.

"INVALID DELETE CARD -- JOB ABORTED"

A PCN in the MDELFILE is not in the correct format.

"NO FILES WILL BE DELETED IN UPDATE PASS"

No MDELFILE present in the running account.

"CREATING NEW MASTER NAME FILE"

No MTRNMFIL found in running account at start of LIST pass.

"REEL NUMBER IN MTRNMFIL CONFLICTS WITH I/P TAPES"

During an update pass the processor compares the INSN of the tape on which the file resides with the INSN specified for that file in the MTRNMFIL. If they do not match the job will abort.

"(PCN) DOES NOT EXIST -- CAN'T DELETE"

A PCN in the MDELFILE does not exist on either the I/P Master Tape or the Update Tape. The record is ignored and processing continues.

"(PCN) DELETED"

A PCN in the MDELFILE was found on either the I/P Master Tape or the Update Tape and deleted.

"END OF JOB"

The UPDATE or LIST completed successfully.

17:39 MAR 08, '82 LI#UTIL.:UTIL

CRG	GRAN	REC	LAST MODIFIED	NAME
K 3		15		:STD
C		36		CDTBC
C		46		CPYBC
K 3		3		JCL:LOAD:SLIP
K 3		4		JCL:LOAD:SLFUNCH
K 3		4		JCL:LOAD:SLUPDATE
C		54		PUNCHBC
C		30		PVBC
K15		6		SLIP
K15		6		SLFUNCH
K15		6		SLUPDATE
C		14		SUBBC
C		18		TABLESBC
C		76		UPDATEBC
C		37		VFYBC
C		19		VFYPTBC

.. 16 FILES LISTED, 374 TOTAL RECORDS

1600 BPI

15:48 MAR 05, '82 ID=0393 (SIG 7)
JOB :UTIL,OPR000000791,7. FILE=JCL:TAPECOPY, ID=1B, LINE=1E
LIMIT (COPE,24),(TIME,60),(PT,2)

PCL
COPYALL LT#M300 TO LT#M400

850035-74P00	850605-84A00	850626-44A00	850626-84A00	850628-34A00
850629-24A00	850629-34A00	850634-34A00	850637-34A00	850638-34A00
850639-34A00	850640-44A00	850640-84A00	850641-34A00	850642-84B00
850643-24A00	850643-44A00	850644-44A00	850645-44A00	850645-84A00
850646-44A00	850646-84A00	850647-84B00	850648-44A00	850648-84A00
850649-34A00	850649-84A00	850650-34A00	850650-84A00	850652-34A00
850652-84A00	850653-34A00	850653-84A00	850655-44A00	850656-44A00
850656-84A00	850657-34A00	850658-34A00	850658-84A00	850659-44A00
850659-84A00	850660-74A00	850661-34A00	850662-34A00	850663-34A00
850663-84A00	850666-34A00	850667-34A00	850671-44A00	850675-34A00
850675-84A00	850676-34A00	850676-84A00	850677-34A00	850678-34A00
850680-24A00	850680-34A00	850681-34A00	850682-34A00	850684-44A00
850686-24A00	850687-34A00	850688-24A00	850688-44A00	850690-24A00
850690-34A00	850691-34A00	850691-84A00	850692-34A00	850693-44A00
850693-84A00	850694-44A00	850695-34A00	850696-34A00	850697-34A00
850698-34A00	850699-34A00	850699-84A00	850701-34A00	850702-34A00
850703-44A00	850704-34A00	850705-34A00	850708-34A00	850711-84A00
850712-34A00	850716-34A00	850717-34A00	850720-34A00	850721-34A00
850721-84A00	850722-34A00	850724-44A00	850724-84A00	850725-84A00
850726-44A00	850726-84A00	850727-44A00	850739-34A00	850740-24A00
850740-44A00	850741-24A00	850741-44A00	850742-34A00	850743-34A00
850744-44B00	850755-44A00	850755-84A00	850816-44A00	850831-34A00
850831-84A00	850832-34A00	850832-84A00	850833-34A00	850835-34A00
850836-34A00	850841-34A00	850842-34A00	850848-84A00	850857-34A00
850858-34A00	850859-34A00	850862-34A00	850864-34A00	850901-44A00
850914-24A00	850914-44A00	850915-24A00	850915-44A00	850916-44A00
850957-84A00	850963-34A00	850964-34A00	850965-34A00	850967-34A00
850968-34A00	850970-44A00	850985-34A00	850985-84A00	850986-34A00
850986-84A00	850989-34A00	850990-34A00	850991-34A00	850992-34A00
850992-84A00	851012-44A00	851014-34A00	851017-34A00	851019-44A00
851026-34A00	851027-44A00	851047-24A00	851047-34A00	851048-34A00
851048-84A00	851052-34A00	851054-24A00	851054-44A00	851055-44A00
851056-44A00	851057-44A00	851058-44A00	851060-44A00	851060-84A00
851062-44A00	851063-44A00	851064-24A00	851064-44A00	851101-34A00

851102-34A00	851103-34A00	851104-44A00	851104-84A00	851106-24A00
851106-44A00	851107-44A00	851107-84A00	851108-34A00	851108-84A00
851110-44A00	851110-84A00	851111-34A00	851111-84A00	851112-24A00
851112-44A00	851113-44A00	851113-84A00	851114-44A00	851114-84A00
851115-44A00	851115-84A00	851116-44A00	851116-84A00	851117-44A00
851118-44A00	851118-84A00	851119-44A00	851119-84A00	851121-24A00
851121-44A00	851122-44A00	851122-84A00	851123-44A00	851123-84A00
851124-44A00	851124-84A00	851127-44A00	851127-84A00	851128-44A00
851128-84A00	851130-44A00	851131-24A00	851131-44A00	851134-44A00
851134-84A00	851135-34A00	851136-44A00	851137-44A00	851143-24A00
851143-44A00	851144-44A00	851144-84A00	851145-34A00	851149-34A00
851150-34A00	851151-24A00	851151-34A00	851152-44A00	851154-44A00
851155-44A00	851156-44A00	851157-34A00	851159-34A00	851160-34A00
851161-34A00	851162-34A00	851163-34A00	851166-44A00	851167-34A00
851168-34A00	851169-24A00	851169-34A00	851170-34A00	851171-34A00
851173-34A00	851174-34A00	851175-34A00	851176-44A00	851176-84A00
851177-24A00	851177-34A00	851178-34A00	851179-34A00	851180-34A00
851181-44A00	851181-84A00	851182-34A00	851184-34A00	851185-34A00
851186-34A00	851187-34A00	851187-84A00	851188-34A00	851188-84A00
851257-84B00	851291-44A00	851292-24A00	851293-24A00	851294-24A00
851299-34A00	851300-64A01	851500-74D00	851579-44A00	851580-34A00
851580-84A00	851584-44A00	851585-44A00	851586-34A00	851587-34A00
851587-84A00	851588-34A00	851588-84A00	851589-34A00	851589-84A00
851590-34A00	851590-84A00	851591-34A00	851591-84A00	851592-34A00
851592-84A00	851593-34A00	851593-84A00	851594-34A00	851594-84A00
851595-34A00	851595-84A00	851596-34A00	851596-84A00	851597-34A00
851597-84A00	851598-34A00	851601-34A00	851604-34A00	851605-34A00
851606-34A00	851607-34A00	851610-34A00	851612-34A00	851613-34A00
851614-24A00	851614-34A00	851615-44A00	851616-44A00	851617-44A00
851618-44A00	851618-84A00	851619-44A00	851619-84A00	851620-44A00
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900 BPI

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