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Information Retrieval

1. Step: Call the Retrieval Program (Lars)

2. Step: Call the desired database (Lib)

3. Step: Call the Query or Retrieval Function (SEARCH, SEEK, FIND)

4. Step: Enter the Query Statement:
   1. State the field to search.
      
      T1:

      field name   separator (:, =, :=, none)

   2. State the term (string) to search for.
      T1: Handbook of Training Management

Note:
Search will only be successful if:
- The search string is entered correctly.
- The string was entered correctly in the database.
In-String-Search (Truncation)

Serves the purpose of:
- selecting a group of terms
- widening the selection range
- saving typing work

Example:

TI: Handbook* ← Truncation symbol
(different truncation symbols are used)
will produce all handbooks, but not
"The Radio Training Handbook"

TI: * Management
will produce all titles ending on "management".

TI: * Training*
will produce all titles containing the word "training", but not
"A Handbook for Teachers and Trainers"

Note: A leading truncation will increase the search work for the computer.
Logical Combination

Basic Operators: AND, OR, NOT

General Rules:
- AND and NOT narrow the scope.
- OR broadens the scope.

Logical Operators can be used to combine the terms of a field.

Examples:

input: T1: *Train* AND T1: *Manag*
output: A Handbook of Training Management

input: T1: *Train* OR T1: *Manag*
output: Medical Training in Germany
         - A Handbook of Training Management
         - A Managers Guide to Broadcasting

input: T1: *Train* NOT T1: *Manag*
output: Medical Training in Germany

input: T1: *Manag* NOT T1: *Train*
output: A managers Guide to Broadcasting
Logical Operators can be used to combine fields:

Examples:

- TI: *Training* OR SH: Training
- AU: Smith, G. AND SH: Germany
- SH: Training NOT AU: Solbach W.

Queries may be constructed more complex:

((SH: Train* OR SH: Educ* OR SH: Teach*)
AND (SH: Rural OR SH: Agri*)
AND LA: english) NOT AU: Smith, G.
Ravi Shankar in the Cologne Philharmonie

With english 0-Ton (2'40"") & a full interview with Ravi Shankar (9'45"")

Autor/Interview: James Pastouna
Länge: 120 Zeilen Text, 22'14" Musik
Verantw. Redakteur: Mahi Ismail
Einspielband-Nr.: 1 610 612 Musik
1 641 552engl. Interview
1 641 553 engl. 0-Ton
Ravi Shankar, India's musical ambassador is yet again on tour in West Germany. Incidentally that song you've just listened to is called rather appropriately "For All Mankind". Appropriate because Ravi Shankar plays a type of music that is intended for all mankind.

Ravi Shankar's name is associated with the beauty of India's traditional music and with the breaking down of traditional and cultural boundaries. Indeed just last year, in Stuttgart he took part in an all night Indian music festival that was celebrating Stuttgart's association with its "twin" city in India, the city of Bombay.

Just recently, Ravi Shankar took part in a "mini" West German tour, playing in Hamburg and Cologne. Before we talk about Ravi Shankar's Cologne concert and mention his views concerning Indian classical music, it is important to talk about his early life - so as to gain a greater understanding about one of India's greatest classical musicians. Ravi Shankar was born on the seventh of April, 1920 in Varanasi, north India. Although he began to seriously study music at the age of eighteen, Ravi Shankar had from childhood a great interest in other musical cultures other than his own, in particular the music from the West. This came about because his older brother "Uday" was one of India's most well known dancers belonging to the "Company of Hindu Dance and Music". In 1929 his brother returned to India after having danced in Europe. The Shankar family decided that they would set up home in Paris, the city that Uday's dance troupe practised and lived in. During that time Ravi Shankar mastered different western musical instruments and also the art of dancing Indian ballet. He accompanied his brother on the stage.
The real turning point in the life of Ravi Shankar, that would influence him greatly was when at the age of fourteen, an impressionable age, he met the brilliant Indian musician Usted Allaudin Khan Sahib who was visiting Paris.

Khan Sahib recognised immediately the enormous musical talent in the youngster and that for Ravi Shankar to exploit his talent, he must leave the "bright lights" of the city and "return to his roots" so to speak. India would exploit the musical potential that lay in him and that he could become musically speaking "one of the all time greats". Ravi Shankar was aware that many a western musician criticised Indian music and realised that those who criticised the music of his country simply didn't understand it. It became his ambition to educate people worldwide about Indian music and culture. Khan Sahib and Ravi Shankar left for India. He was embarking on a course of action that would one day fulfill his goal.

It is important to mention that Ravi Shankar is a Brahman. A Brahman is a member of the highest priestly caste in the Hindu caste system. In India, during that time - he was at the age when he would be initiated into the Hindu religion. Ravi Shankar went to the village of Maihar, the village of his "Guru" and it was there that his rebirth slowly took place. This religious experience was intense and he spent some years living humbly, meditating and playing the Sitar.

Today it is common knowledge that Ravi Shankar's brilliant mastery of the Sitar is in all likelihood unparalleled. In Maihar he practiced for days on end. Even today, some fifty years later, Ravi Shankar regards his "mastery" of the Sitar very modestly.

"First of all I'm not a master of the Sitar because I'm still learning."

"Therefore you see it's a long process because we don't have visual help. We consider that it takes 20 years - to become, along with the talent, hard work, proper training and everything - it takes 20 years to become a proficient musician."
The form of music that Ravi Shankar plays is Raga music. Raga music is very different to the music of southern India - it is essentially northern Indian music. The Raga blends the harmonic relationship between the musical tones and involves much improvisation. A Raga represents a particular mood. But how can the classical musician be sure that each mood gets across to the audience so that they can fully appreciate the Raga.

"Well that is something that we have to play by the ear, on the other hand these moods are specifically prescribed for each Raga. They have their own individual mood but the artist has the freedom to give also his own version to it sometimes - so I might take up a basically sad Raga but may play it not so sad - more with speed and make it a little lighter - Things like that we do all the time in a performance."

The Indian Spring Raga can represent both the Indian Spring and the longing for a loved one. It symbolises joy and the pain of separation. This following song is called appropriately "Music for Springtime".

2) Ravi Shankar: 1 303 229
   Musik zum Frühling 4'07"
   Ravi Shankar
   (All India Radio)

Let's return to Ravi Shankar and the time he left his "Guru" in the village of Maihar. His destination was the city of Bombay. In Bombay the situation looked bleak, he had to struggle to make ends meet till a chance meeting changed his life. His career slowly but surely started to blossom.

In 1951 Yehudi Menuhin, the brilliant violin virtuoso visited India, having become fascinated with the music of Ravi Shankar. They formed a duett combining both, the music of East and West. For years to come their paths would cross culminating in a concert that they gave in the late sixties that's been described as one
of the musical "events" of this century. That concert was held rather appropriately in the New York United Nations building. Ravi Shankar has played with a variety of western musicians how does he achieve a meaningful fusion of both East and West - two different musical cultures?

O-Ton 3: engl. Ravi Shankar 0'25"

"I never try - up to now to play any non - Indian music. I never try and play any Bach or any classical or Jazz or no matter what. Whatever I have done with non Indian musicians has been my own compositions based on our own music, Indian classical, contemporary or folk."

Before we talk about his present day career and the concert that he gave in the Cologne Philharmonic we have a song called "Sare Jahan Se Achha", the choral groups on the song come from Calcutta, Delhi, Madras and Bombay.

3) Ravi Shankar:

Sare Jahan Se Achha 4'44"
Ravi Shankar
(All India Radio)

Since the late fifties Ravi Shankar has played the Sitar and composed for many a world famous musician. He has played with the New York Philharmonic Orchestra, the London Symphony Orchestra and the Japanese virtuoso Hosan Yamamoto - but to mention a few. Literally millions of young people learned to appreciate Indian classical music because of Ravi Shankar's association with George Harrison of the Beatles. George Harrison wanted to learn the Sitar and although Ravi Shankar could have ignored his request having played with the world's most prominent musicians, he took his request seriously. The night he played in Cologne he was accompanied with two fellow musicians who played the Tabla and Tamboura. Unfortunately the concert was not recorded but to get a feel of what it was like that evening - we have a song called "Kafi - Holi" with just three instruments, the Sitar, Tabla and Tamboura.
There were about 1500 people who attended the Philharmonic that night. There was a hushed silence as the lights dimmed and after much applause Ravi Shankar announced that they would play an evening Raga. The Tabla player kept the rhythmic cycles of the Tabla and the Tamboura acted as a supporting instrument. One could say this Ravi Shankar in his "element" so to speak. After having had so many successful musical ventures here he was playing classical Indian music. The music of his country. The concert finished with a Tabla solo and the audience stood and applauded and applauded. This was Ravi Shankar doing what he subconsciously does best - encouraging a worldwide appreciation of Indian music and culture. Before we leave you, we must mention that he has also composed and played music for many a film. The film "Ghandi" that showed the world how India won its independence at the cost of enormous human suffering, had its music fittingly composed and played by Ravi Shankar. It would come as no surprise to think that Ravi Shankar will play till he dies and will always claim to the day he drops - that he is still learning to master the Sitar. With that modest approach to music one will always has done.

We leave you with a piece of music from the film "Ghandi" called "Discovery of India".

5) Ravi Shankar: 1 313 429
   Discovery of India 2'41"
   Ravi Shankar
   ( RCA )
a) Ravi Shankar: englisches Interview

I: James Pastouna
D: 9'45"
EBD: 1 641 552
**McFerrin, Bobby**  

**TITEL/AUSFÜHRENDE**  

*Don't worry, be happy*  

Latin-Song  

Simple pleasures  

**McFerrin, Bobby (voc)**  

**Backgroundchor Ensemble**

---

**Perumal, K.**

**TITEL/MITWIRKENDE**

*Mangala Deepavali*  

Lied zum Deepavali-Lichterfest aus Singapur

**ABU Radio Festival of Folk Music 1977**

Keine Abgabe an TS, TRANS-TEL und e-te-s

**Frauenchor**  

**Febra Music Party (instr)**

**Urband:** 304 315
Interview mit Ravi Shankar über seine Musik

**INHALT:** KAP: Interview

ERLERNUNG UND VERVOLLKOMMUNG DES SITARSPIELENS/ INTERPRETATION VON INDISCHER MUSIK; TECHNISCHE PROBLEME AUF DER BÜHNE/ ZUM URSPRUNG DER SITAR ALS INDISCHES MUSIKINSTRUMENT/ SHANKARS KOMPOSITIONEN AUF DER GRUNDE DER INDISCHEN MUSIK/ SEINE ZUSAMMENARBEIT MIT AUßERINDISCHEN KOMPOSITIONEN/ TALENTIERTER NACHWuchs UND POPULARITÄT DER SITAR BEI DER INDISCHEN JUGEND/

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**AUTOR/MITWIRKENDE**

GSP: Shankar, Ravi (indischer Sitar-Spieler)

INT: Pastouna, James

KAL: Lehrmann, Magdalene

TAL: Körber, Jürgen

**Hinweis:** dazu Manuskript

4720 230389 106 03
Indien/Musik; Saankar, Ravi

SERIE/TITEL Ravi Shankar in the Cologne Philharmonie

INHALT: KAP: Einspielband Musik
KAP: Wort-Musik-Manuskript

001- For All Mankind
Musik aus dem Film "Ghandi"
1 313 432
6'12

002- Musik zum Frühling
1 303 229
4'07

003- Sare Jahan Se Anchha
284 594
4'44

004- Kafi - Holi
(Schluß ab Einsatz der Tabla)
1 027 909 000
4'28

005- Discovery of India
1 313 429
2'41

- Trennband -

ARCHIV-NR. 1 610 612
4720 230389 106 03
ZEIT 22'14

AUFNAHMETAG 19890320
ORT Köln
38/MON
LEITER 120 Z
INGENIEUR
KOSTENSTELLE 4721/4720

ABTEILUNG ZRM
SPRACHE engl

UMSCHNITT 4721 200389 203
INDUSTRIE-FA.
PLATTE/BAND 4/89 s

AUTOR/MITWIRKENDE
AUT: Pastouna, James
RED: Ismail, Mahi
KAL: Lehrmann, Magdalene
TAL: Unbekannt

Hinweis: dazu Interview
Shankar, Ravi
1 641 553 (engl) 2'40
Shankar, Ravi
1 641 552 (engl) 9'45
A short guidance through information/central card-index

First of all a short description of the usual way, how a verbal or musical documentation is handled.

The music industry firms,—like record companies or producing publishers,—are sampling the Deutsche Welle with one copy each, of all their new and recent releases. An exception is classical music.

Our check-listening commission, consisting of editors and musical experts, take these records or tapes to a monitoring studio and make a choice selection, which one of the different titles could be interesting for our special purposes.

After the chosen title is copied on tape, (we can only broadcast from tapes on short wave), the record gets numbered and is stocked in our record magazine.

Now the work of the archivist for catalogue-entry begins.

On a registration voucher all important contents are specified; in particular are these:

- archives number of 10 digits
- duration of tape
- tape speed
- composer
- title
- artist, interpret, performer
- recording manager
- arranger, treater
- bearer of charges
- sort, type, style, character of music
- publisher
- label code
- language
- period of preservation
- archives number of record (where tape is copied from)
- name of record company or publisher
- name of label
- industry serial number
- distribution code
- and others more.

All these dates are transferred by typewriter on the sticker for the library tape-box. This sticker is at the same time the matrix for duplicating the index-cards. The filing cards are multiplied from the stick-on label according to the privy marks on the distribution code. To be able to distinguish where the various index-cards are meant to be filed, we use a sort of a colour code. The abbreviation for our different card types and their colours are:

- L = for guiding card (the colour is white)
- K = for composer card (red)
- T = for title card (yellow)
- M = for interpret/performer card (green)
- S = for subject card (white)
- SP= for catchword card (white)
- LP= for record card (blue)
- Ab= for data voucher

The data voucher is necessary for our EDV organisation. It is used to regulate chargeable transmission-fees and for the clearing system with the GEMA (society for electronical and mechanical performing rights) a company comparable to ASCAP & BMI.
Our central card-index consists of four different types:

1. Guiding card-index
2. Persons or nominal card-file
3. Title card-index
4. Subject card-index; besides the subject file a catchword or descriptor card-index.

1. The so called guiding card-index is a numbered file to check up licenses, expenses, copyrights, bearer of charges and so on. It is also important to find out what is wrong, when a tape cannot be found in the tape magazine. The guiding card-index includes every tape that DW has possessed at all times and is kept for good, even if the tape is erased. An erasure is made evident when the card is marked with a special stamp.

2. The persons card-file includes authors, composers, artists, performers, groups, orchestras, statesmen etc. It is filed strictly alphabetical. The different colours, as already said before, have different functions. There is no distinction between verbal and musical documentation, so you can find politicians, poets, or people of the cultural scene as well as musicians, composers, or singers in the nominal card-index.

3. The title-index contains of course everything that can be found in the persons file, but the assortment differs. A new strictly by alphabet, every title of a song, an opera, a radio play, or whatsoever can be spotted immediately. For medleys and similar works several title cards are made. Definite articles are not considered in the title-file.

4. For the filing of the subject card-index we have a systematology on hand. Classical music for instance is subdivided in chorus music, chamber music, church music, opera music, concertos and symphonic music. Light music is subdivided in Jazz, musical, operetta, dance music and pop music with numerous variations.

A bright scope takes place regarding German, European and Non-European folkloristic music. The Non-European music is highly important to our concerns as a German broadcasting station for foreign countries. The cards are filed to begin with by continents, within these regions by countries; then by subjects such as cultural music, folkdance, instrumental folkmusic, music of the tribes, and vocal music divided by languages.

The catchword-index is very helpful when for example an editor does a programme on a certain topic like women’s emancipation or overweight and similar themes.

We also file biographical material and special periodicals in the central card-index.
The International Association of Sound Archives (IASA) is a non-governmental UNESCO affiliated organisation. It was established in 1969 in Amsterdam to function as a medium for international cooperation between archives which preserve recorded sound documents. The Association is actively involved in the preservation, organisation and use of sound recordings, techniques of recording and methods of reproducing sound in all fields in which the audio medium is used; in the exchange of recordings between archives and of related literature and information; and in all subjects relating to the professional work of sound archives and archivists including acquisition, documentation, copyright, access, distribution, preservation, and the technical aspects of recording and playback.

Membership of the Association is open to all categories of archives and other institutions which preserve sound recordings, and to organisations and individuals having a serious interest in the purposes or welfare of IASA. The Association includes members representing archives of music, history, literature, drama and folklife recordings; radio and television sound archives; collections of oral history, natural history, bioacoustic and medical sounds; recorded linguistic and dialect surveys.

IASA holds an annual conference which includes a General Assembly to report the business of the Association to the members, working sessions for IASA committees, and sessions on topics of general interest.

The Association has over 400 members, individual and institutional in more than 40 countries.

Organisation of IASA

The Association is controlled by an elected Executive Board, supported by a number of committees with special subject interests and the National and Affiliated Organisations Committee (NAOC). The constitution of IASA provides for national branches, as well as affiliated organisations.

Committees exist for Cataloguing, Copyright, Discography, History of IASA, National Archives, Radio Sound Archives, Technical, and Training aspects. IASA committees work on specialised topics independently and in conjunction with other interested audiovisual archive associations.

The Cataloguing and Discography committees work on existing rules as well as minimum data lists for the description of sound recordings in an international context.

The Copyright committee discusses guidelines for archives and libraries with several of the international rights protection agencies and the relationship of copyright and the legitimate work of sound archives in the reproduction of material, the reproduction of recordings and the rights of access for research purposes.

The History Committee of IASA records the early and current history of the Association and registers the Association’s papers for future use.

The National Archives Committee provides a working forum for the discussion of the problems of the larger state archives.

The Radio Sound Archives Committee provides a forum for the discussion of problems and exchange of professional expertise of sound archivists working in broadcasting organisations.

The Technical Committee provides an important forum of exchange amongst archive technical staff and builds international technical links to guard against the dangers of working in isolation. The committee plays a major role in communicating with the non-technical members of IASA, and acts as an interactive resource for the membership as well as undertaking specialist work.

The Training Committee investigates and promotes training facilities for sound and other audiovisual archivists and is working on the publication of training materials.

The journal of the Association, the Phonographic Bulletin is published three times a year and sent to all members. A cumulative index to the journal is issued at intervals. Back issues of the Bulletin are available. Other publications include a Membership List and a Directory of Member Archives which are periodically revised and a series of Special Publications related to the work of sound archivists.

IASA is a member of the Round Table of Audiovisual Records which includes representatives from Unesco and other audiovisual archive associations. The Association collaborates with several members of this Round Table in working groups and the presentation of additional symposia and conferences.

Membership application forms and copies of the Association’s statutes may be obtained from the Secretary General. Subscriptions for the Phonographic Bulletin are available to libraries and other appropriate organisations and individuals. All cheques or money orders should be sent to the Treasurer and made payable to the International Association of Sound Archives.
working up or sound recordings

Registration

Selection

Formal Description

Content analysis

Data checking

Storage

Information Retrieval
The restoration of democracy by Corazon Aquino's Independence of legislative, judiciary, and executive importance at the local elections.

The results of the local elections were correct. Corazon Aquino gave an example by donating parts of her land, but there are still some problems to solve.

Indicative description of the political situation on the Philippine Cardinal Sin. He emphasized the progress on the path to democracy, but he mentioned some problems according to the land reform.
Types of Abstracts

Informative Abstracts

Indicative Abstracts

Sequential Abstracts

Informative/Indicative Abstracts

Informative/Sequential Abstracts

Indicative/Sequential Abstracts
What is an abstract?

An abstract is an abbreviated representation of a document.

What is an abstract not?

An extract
A summary
An annotation
An survey - critical review of some important articles/books which are written on a certain topic.
Content analysis of spoken-word record

Abstract

Descriptors

Program category

Remarks
Hardware

for a PC-System

- Central Unit
- Monitor
- Keyboard (Console)
- (Printer)
- (Mouse)
Types of PC for professional use:

- IBM compatibles:
  - XT
  - AT
  - "386"

- IBM PS/2 - Series:
  - 30
  - 60
  - 80

- Apple Macintosh II

- Commodore Amiga 2000

- Atari ST
The Central Unit
its essential parts

Motherboard, main PCB which carries the following parts:
- **CPU** the 'heart', characterizes the PC. E.g. 8088, 80286, 80386.
- **Clock Circuit** sets the working speed, min. 8MHz.
- **RAM** the working memory. 640kByte is standard for IBM-comps.
- **ROM** contains the firmware (BIOS)
- **Extension Slots** can take up extension cards
  - **Graphics Adapter** will drive the monitor.
  - **Parallel- and Serial Ports** for printer and mouse
  - **Disk-Controllers** is required for the disk drives.

**Disk Drives:**
- **Floppy drive:**
  - 5.25" or 3.5" with a capacity of
    - 360kB to 720kB
    - 1.2MB or 1.44MB
- **Hard Disk drive:**
  - with a capacity of
    - 20MB to 100MB.
Bits and Bytes

Computers understand instructions or informations only in terms of 1 or 0

Each 1 or 0 represents a Bit.

10001110101010000101001111101001010010111

Bits are normally grouped to 8, each group is then called a Byte.

11010001

Alphanumeric symbols can be represented by one byte according to the ASCII-code

e.g.: A = 01000001 or ? = 00111111

01010100011001010111100001110100

Text

For larger amounts of digital data the terms

kB (kilo byte), 1kB = 1024 byte

or

MB (mega byte), 1MB = 1024kB = 1,048,576 byte

are used.

As a rule of thumb:

- One page of typed text will require up to 2kB for computer storage.

- Cataloging information for a book will require approximately 1kB storage capacity. Thus for cataloging 1000 titles, 1MB is required.
Software

1. BIOS (Basic Input/Output System)
   It is contained in the ROM, thus it is part of the hardware (firmware).
   Tasks of the BIOS:
   - Performs the self test,
   - Initializes all peripheral devices, (graphics adapter, disk controller, ports)
   - Loads the operating system.

2. Operating System (OS)
   for PC: DOS (Disk operating System)
   Tasks of the DOS:
   - Provides means for an useful operation of the computer,
   - Provides simple programming means,
   - Allows to run application programs.

3. Application Programs
   for very special tasks of the computer:
   - Programming languages,
   - Word processors,
   - Data base management systems,
   - CAD programs
   - Graphics Programs
   - Retrieval programs
   - etc.
The computer searches the DOS at the floppy drive or at the hard disk drive.

MS-DOS consists of:

- 2 Operating System Files,
  These are hidden files on the disk.

- The Command Interpreter,
  This is a file which is taken resident into the RAM and provides the most important commands for the computer.

- The Command files,
  These are a number of programs which each provide one useful task. They are taken into the RAM just during the processing of the task and are thus called “transient” commands.
**Organisation of a Disk**

The 'VOLUME' is an entire disk. It may have a LABEL.

The ROOT DIRECTORY may contain a number of FILES:
- file1
- file2
- file3
- file4
- file37
- file38
- file40

Any Directory may contain a number of SUBDIRECTORIES

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<tr>
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<td>Subdir2\Subdir2</td>
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</table>
The Tree Structure
of a Hard Disk

C:\

\DOS \WORD \DB \Arch

\TXT \SPELL \ADR \STK \LIB \MUS
MS-DOS

Entering Commands

DOS Commands have to be entered at the DOS Prompt.

A>

current drive prompt

Every entry has to be terminated with the ENTER key.

other symbols used: ^J, CR, Return.

The First Command: DIR (displays the files of a directory)

A>dir

DOS file names:

NNNNNNNNN.XXX

file name extension fullstop

File Name: 1 to 8 alphanumerical characters.

Extension: up to 3 alphanumerical characters.

The extension

BAT
COM
EXE identify DOS programs.
A Database
with Index Cards

0'10
KOMPONIST
ARCHIV-NR.
ZEIT
1 317 035 0 L
04'12

0'11
KOMPONIST
ARCHIV-NR.
03'53
1 316 927 0 L

0'24
KOMPONIST
ARCHIV-NR.
1 317 985 0 L
03'42

0'15
KOMPONIST
ARCHIV-NR.
1 317 303 0 L
03'54

0'17
KOMPONIST
ARCHIV-NR.
1 318 132 0 L
04'44

0'39
KOMPONIST
ARCHIV-NR.
1 318 291 0 L
03'54

0'16
KOMPONIST
ARCHIV-NR.
1 319 136 0 L
03'45

0'33
KOMPONIST
Rockwell
ARCHIV-NR.
1 319 716 0 L
04'51

ZEIT
49

TITEL/AUSFØRRENDE
Somebody's watching me
Rock-Song

TITEL/AUSFØRRENDE
Somebody's watching me

BEMERKUNOEN
SENOER/HUS: 4111 220284
INDUSTRIE: 1 106 838
VERLAG: 8: 21 72 147

BÄRBEITER
TEXTDICTER
9: LC-0681
ARCHIV
LYR/LP/Ab

CHARAKTER
20
SPRACHE
englisch

BEMERKUNOEN
**A Database in a Computer**

*Representation as table*

---

### Table: Record Entry

<table>
<thead>
<tr>
<th>ACC_NO</th>
<th>TITEL</th>
<th>PERFORMER</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Somebody's watching me</td>
<td>Jackson, M.</td>
</tr>
<tr>
<td>2</td>
<td>Girls just want to have f</td>
<td>Lauper, C.</td>
</tr>
<tr>
<td>3</td>
<td>Talking in your sleep</td>
<td>The Romantics</td>
</tr>
<tr>
<td>4</td>
<td>Hold me now</td>
<td>Thompson Twins</td>
</tr>
<tr>
<td>5</td>
<td>Say, say, say</td>
<td>Jackson, M.</td>
</tr>
<tr>
<td>6</td>
<td>Owner of a lonely heart</td>
<td>Yes</td>
</tr>
<tr>
<td>7</td>
<td>Karma Chameleon</td>
<td>Culture Club</td>
</tr>
<tr>
<td>8</td>
<td>All night long</td>
<td>Richie, L.</td>
</tr>
</tbody>
</table>
Planning a Database

1. Which Fields?
   - Contents of the database
   - Contents of the field
   - Field name

2. Type of Field:
   - Alphanumeric
   - Text
   - Numerical
   - Date or time
   - Logical

3. Size of Field:
   - Large enough to take all information
   - Not too large to minimize the file size.

4. Indexed or not?
   - Do you search for the entry?

It is difficult to change the definitions of an existing database
# Internal Structure of a database

## Linear file

<table>
<thead>
<tr>
<th>ACC_NO</th>
<th>TITEL</th>
<th>PERFORMER</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Somebody’s watching me</td>
<td>Jackson, M.</td>
</tr>
<tr>
<td>2</td>
<td>Girls just want to have f</td>
<td>Lauper, C.</td>
</tr>
<tr>
<td>3</td>
<td>Talking in your sleep</td>
<td>The Romantics</td>
</tr>
<tr>
<td>4</td>
<td>Hold me now</td>
<td>Thompson Twins</td>
</tr>
<tr>
<td>5</td>
<td>Say, say, say</td>
<td>Jackson, M.</td>
</tr>
<tr>
<td>6</td>
<td>Owner of a lonely heart</td>
<td>Yes</td>
</tr>
<tr>
<td>7</td>
<td>Karma Chameleon</td>
<td>Culture Club</td>
</tr>
<tr>
<td>8</td>
<td>All night long</td>
<td>Richie, L.</td>
</tr>
</tbody>
</table>

## Inverted file

- **Record pointer**

<table>
<thead>
<tr>
<th>Song</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>All right now</td>
<td>8</td>
</tr>
<tr>
<td>Girls just want</td>
<td>2</td>
</tr>
<tr>
<td>Hold me now</td>
<td>4</td>
</tr>
<tr>
<td>Karma Chameleon</td>
<td>7</td>
</tr>
<tr>
<td>Owner of a lone</td>
<td>6</td>
</tr>
<tr>
<td>Say, say, say</td>
<td>5</td>
</tr>
<tr>
<td>Somebody’s watch</td>
<td>1</td>
</tr>
<tr>
<td>Talking in your s</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Song</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Culture Club</td>
<td>7</td>
</tr>
<tr>
<td>Jackson, M.</td>
<td>1, 5</td>
</tr>
<tr>
<td>Lauper, C.</td>
<td>2</td>
</tr>
<tr>
<td>Riechie, L.</td>
<td>8</td>
</tr>
<tr>
<td>The Romantics</td>
<td>3</td>
</tr>
<tr>
<td>Thompson Twins</td>
<td>4</td>
</tr>
<tr>
<td>Yes</td>
<td>6</td>
</tr>
</tbody>
</table>
THE MOST COMMON DOS COMMANDS

BACKUP Produces a backup of files or a directories.
         The backup file has to be recovered with the RESTORE command.
BREAK Allows enable and disable of abortion of execution of programs
         by the CTRL-BREAK key.
CD = CHDIR Changes to another current directory.
COPY Copies files to other files, directories or disks.
DATE Displays and sets the current time of the systems clock.
DEL = ERASE Deletes files of a directory.
DIR Shows the names of files on the screen.
DISKCOPY Copies all data of a floppy disk to another floppy disk.
EDLIN Allows editing of ASCII files.
FORMAT Prepares virgin disks for the use in MS-DOS PC's.
KEYB XX Adjusts the PC to the currently used national keyboard.
LABEL Gives a name to disks or changes it.
MODE Allows adjustment of screen, printer and interface parameters.
MD = MKDIR Creates a new directory.
PATH Defines, in which directory the system searches for a file called.
PRINT Sends the contents of files to the printer.
PROMPT Defines the type of the DOS-prompt and some other display parameters
RENAME Changes the names of files.
REPLACE Replacement or addition of files to a directory or a disk.
RESTORE Restores files saved by BACKUP.
RD = RMDIR Removes a directory which contains no files.
TIME Shows and changes the time of the system clock.
TREE Shows the tree-structure of directories of a disk.
TYPE Shows the content of a file on the screen.
VER Shows the version of the current DOS on the screen.
VERIFY Enables automatic re-checking of all disk-writing processes.
VOL Shows the name of the current disk on the screen.
XCOPY Copies files or directories to other directories or disks.
Notations and Format Conventions

A standard scheme for presenting the general format of the IBM® Personal Computer Disk Operating System (DOS) is employed in this reference guide. The capitalization, punctuation and other conventions are listed below:

[] Brackets indicate that the enclosed items are optional. Brackets do not appear in the actual command.

{} Braces indicate that a choice of one of the enclosed items is to be made. Braces do not appear in the actual command.

... Ellipses indicate that the preceding item may be repeated. Ellipses do not appear in the actual statements.

Italics Italics indicate generic terms. The user must supply the actual value or wording in place of any lowercase italic letters. See Generic Terms, Abbreviations and Definitions.

Punctuation All punctuation characters, including commas, semicolons, quotation marks, asterisks, slashes, backslashes, greater than and less than signs must appear exactly as indicated.

UPPERCASE Uppercase letters and words must appear exactly as shown.

Generic Terms, Abbreviations and Definitions

backup
A copy of a diskette or file(s) or the process of preparing a duplicate copy of a diskette or file(s).

batch file
A file containing one or more commands that DOS will execute one at a time.

command
A message that informs DOS to perform a function or operation.

copy
The process of duplicating a file.

CD
Change Directory.

current directory
The directory DOS searches if you enter a command referencing a filename without specifying which directory the file is located on. Also known as the default directory.

d
The drive identifier. A letter followed by a colon (:), which specifies a physical drive. Normally A is the left or upper diskette drive, B is the right or lower diskette drive and C and D reference the first and second fixed disks. If omitted, DOS assumes you are referencing the current drive.

default
The value selected when no parameter is supplied.

device name
A name reserved by DOS as a system device, such as CON: for console.

DIR
The command which causes the listing of files contained on a disk or diskette. (Directory.)

DISKCOPY
The command or process of duplicating the contents of a diskette.

DOS
Disk Operating System. A group of programs developed to assist in organizing and using the information placed on diskettes and/or fixed disks.

DOS Prompt
The greater than sign (>) is the default DOS prompt that informs you that DOS is waiting for information to be entered.

(.) dot
An entry in a subdirectory that identifies this "file" as a subdirectory.

(…) double dot
An entry in a subdirectory that is used by DOS to locate the next higher level (parent) directory that defines this directory. Entering .. in a path tells DOS to back up one directory level.

dir name
Directory or subdirectory name.

[E]
External command identifier.

end-of-file character
Ctrl-Z.

..ext
File extension. An optional addition to a filename that further defines the file. The extension starts with a period (.) and can be up to 3 characters in length, using the same characters that are valid for a filename.

external command
A command that resides on a disk as a program file and must be loaded into memory prior to execution. Such commands are denoted by [E] after the command name.

file
Related information on a disk grouped into a logical entity and given a name.

filename
A name associated with a file that can be up to 8 characters in length. Characters permitted in the filename include the letters A-Z, digits 0-9, and the special characters $&!*(){}[]\.

filespec
File specification. Information that defines a file and its location. It can include the drive identifier, pathname, filename and file extension.

filter
A program or command that reads data from a standard input device, modifies the data, and then outputs the results to a standard output device.

FORMAT
A command or program that initializes disks to be used by DOS. Diskettes can be formatted to contain either 8, 9, or 15 sectors of information per track and for single or double-sided use.

format
The format or structure of a DOS command.

[I]
Internal command identifier.

internal command
A command that executes immediately as it is built into DOS and resides in memory when DOS is loaded. Such commands are denoted by [I] following the command name.
**partition**
The separate areas into which a fixed disk can be subdivided. Up to 4 partitions of varying sizes can be defined on a fixed disk. Normally one will be assigned to each operating system used with the disk.

**path**
The link between two connected directories or a directory and a file.

**pathname**
The route through directory names to create or access a file or subdirectory. The path consists of one or more directory names separated by backslashes (\). Beginning the path with a backslash causes DOS to start its search from the root directory, otherwise the search begins at the current directory. If the filename is included, it should be separated from the last subdirectory name by a backslash.

**piping**
The chaining of programs that permits the screen output of one program or command to be used as the keyboard input to another program or command. The vertical bar (|) denotes piping.

**root directory**
The initial or system directory through which one may access other subdirectories and/or files.

**sector**
A physical subdivision of a track that is 512 bytes long.

**standard I/O**
Refers to the fact that unless DOS is told otherwise, it assumes input comes from the keyboard and output is sent to the display.

**source**
The original diskette or file to be copied or acted upon.

**subdirectories**
Files that contain other files or subdirectories. Subdirectory names use the same format as filenames and may be optionally followed by a period and file extension.

**target**
The destination diskette or file copied to or acted upon.

**track**
Areas (concentric circles) on the disk onto which information is recorded or from which it is retrieved.

**volume**
A label up to 11 characters in length that associates a name to a diskette or a fixed disk partition and serves to identify the diskette or fixed disk partition.

**[X,Y]**
DOS command and parameter identifier. Identifies applicability to this version and all higher versions of DOS.

---

**Control Key Reference**

- **(Enter key)**
  Sends the display line to the program.

- **Esc**
  Cancels the current operation.

- **(Backspace)**
  Removes the previous character from the screen.

- **Num Lock**
  Causes the system to be reset and DOS to be restarted.

- **(Backspace)**
  Stops the screen from scrolling and suspends computer operation. Press any key to resume.

- **Alt**
  Causes the contents of the screen to be printed.

- **Ctrl**
  Causes data to be echoed to the printer. Press again to disable echoing.

---

**DOS VERSION**

<table>
<thead>
<tr>
<th>FEATURE</th>
<th>1.0</th>
<th>1.1</th>
<th>2.x</th>
<th>2.x</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diskette Support</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 sectors</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>6/8 sectors</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>9/16 sectors</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Diskette Label</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Virtual Disk Support</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Networking</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>DOS VERSION</td>
<td>1.0</td>
<td>1.1</td>
<td>2.x</td>
<td>2.x</td>
</tr>
<tr>
<td>Diskette Support</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 sectors</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>6/8 sectors</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>9/16 sectors</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Diskette Label</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Virtual Disk Support</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Networking</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

---

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Global Filename Characters

The question mark (?) and asterisk (*) can be used in filenames and extensions to mean “any character.”

? will match any character in that position. For example, DIR ???PRICE.??? causes any file in the directory that has PRICE in positions 4 through 8 of the filename to be displayed.

* will match any character in that position as well as the rest of that portion of the filename. For example, DIR L*. causes all files in the directory that begin with the letter L to be displayed, regardless of their extensions.

Reserved Device Names

The following names are reserved by DOS as the indicated system devices and cannot be used as filenames or directory names.

<table>
<thead>
<tr>
<th>Reserved Name</th>
<th>Device</th>
</tr>
</thead>
<tbody>
<tr>
<td>CON:</td>
<td>console keyboard/display</td>
</tr>
<tr>
<td>AUX: or COM1:</td>
<td>first asynchronous communications adapter port</td>
</tr>
<tr>
<td>COM2:</td>
<td>second asynchronous communications adapter port</td>
</tr>
<tr>
<td>LPT1: or PRN:</td>
<td>first parallel printer</td>
</tr>
<tr>
<td>LPT2:</td>
<td>second parallel printer</td>
</tr>
<tr>
<td>LPT3:</td>
<td>third parallel printer</td>
</tr>
<tr>
<td>NUL:</td>
<td>nonexistent device for use in application program testing</td>
</tr>
</tbody>
</table>

Changing the Default Drive Reserved DOS Symbols

<table>
<thead>
<tr>
<th>SYMBOL</th>
<th>MEANING</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;</td>
<td>output redirection</td>
</tr>
<tr>
<td>&gt;&gt;</td>
<td>(spooling) output redirection</td>
</tr>
<tr>
<td>&lt;</td>
<td>input redirection</td>
</tr>
<tr>
<td>:</td>
<td>piping</td>
</tr>
</tbody>
</table>

DOS Command Utilization Schematic

A reference for the utilization of DOS parameters and commands is provided by the following schematic depicting an IBM PC series file and directory structure:

Parameter Definition and Utilization Example

File Naming Conventions

<table>
<thead>
<tr>
<th>Filename</th>
<th>up to 8 characters in length from the character set A-Z, digits 0-9 and the special characters $@%() {} ~</th>
</tr>
</thead>
<tbody>
<tr>
<td>File extension</td>
<td>an optional addition to a filename that further defines the file. The extension starts with a period and can be up to 3 characters in length, using the same characters that are valid for a filename.</td>
</tr>
</tbody>
</table>

Examples: PAYROLL.DAT MATH.FTN STAT.BAS

Common File Extensions

<table>
<thead>
<tr>
<th>EXTENSION</th>
<th>FILE TYPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>.ASM</td>
<td>Assembly Language Source Program</td>
</tr>
<tr>
<td>.BAK</td>
<td>Backup file</td>
</tr>
<tr>
<td>.BAS</td>
<td>BASIC program</td>
</tr>
<tr>
<td>.BAT</td>
<td>Batch processing command file</td>
</tr>
<tr>
<td>.BIN</td>
<td>Binary file produced by compiler</td>
</tr>
<tr>
<td>.COB</td>
<td>COBOL program in source form</td>
</tr>
<tr>
<td>.COM</td>
<td>Command or program directly executable by DOS</td>
</tr>
<tr>
<td>.DAT</td>
<td>Data file</td>
</tr>
<tr>
<td>.DOC</td>
<td>Document file</td>
</tr>
<tr>
<td>.EXE</td>
<td>Executable program executable by DOS</td>
</tr>
<tr>
<td>.FOR</td>
<td>FORTRAN program in source form</td>
</tr>
<tr>
<td>.LIB</td>
<td>Library program</td>
</tr>
<tr>
<td>.OBJ</td>
<td>Machine language (object) version of a compiled program</td>
</tr>
<tr>
<td>.OVL</td>
<td>Application program overlay file</td>
</tr>
<tr>
<td>.PAS</td>
<td>Pascal program in source form</td>
</tr>
<tr>
<td>.PIC</td>
<td>Screen display image</td>
</tr>
<tr>
<td>.PRN</td>
<td>Assembly language listing file</td>
</tr>
<tr>
<td>.TMP</td>
<td>Temporary file</td>
</tr>
<tr>
<td>.TXT</td>
<td>Text file</td>
</tr>
<tr>
<td>.SIS</td>
<td>Temporary file</td>
</tr>
</tbody>
</table>

Filespec

File specification information defines a file and its physical location. It may include the drive identifier (d), the route to the file (pathname), the filename (filename) and a file extension (ext).

format: [d:] [pathname][filename][ext]

where the pathnam format is [ ]

Note: the longest path must be less than 64 characters.

example: to access the file OTIME.DAT on the diskette in drive A, if you are beginning at the root directory on the diskette in drive A, input:

C>A>PAY>HISTORY\OTIME.DAT

if C is your default drive, or

A>PAY>HISTORY\OTIME.DAT

if A is your default drive.

Note: see the CHDIR (change directory) command to see how to move up or down within a directory hierarchy.
DOS COMMANDS

ASSIGN—[E]
Assign causes DOS to route all requests for a source drive to a target drive. If no parameters are included in the command all previous assignments are undone.

format: ASSIGN[source=target[...]]
example: ASSIGN A=C
result: causes all references to the diskette in drive A to be routed by DOS to the fixed disk drive C.

ATTRIB—[E][3.0]
Attribute causes DOS to set or reset the read only attribute (R) or display the current setting of that attribute. Under DOS 3.2 and above the archive bit (A) can be set, reset, or displayed.

format: ATTRIB [-R] [-A] filename[.ext]
example: ATTRIB +R C:\BUDGET\EAST.DAT
result: sets the read only attribute of the file EAST.DAT in the directory BUDGET on the fixed disk.

BACKUP—[E]
Backup causes one or a set of files defined by global characters from a fixed disk (first device specified) to be backed up onto diskette storage (second device specified).

format: BACKUP [d:][path][filename[.ext]]
example: BACKUP A:[SALES\JUNE\NY.DAT
result: causes all files in the subdirectory SALES on the fixed disk to be backed up.

BREAK—[E]
Break permits the use of Ctrl-Break to affect DOS commands to be enabled or disabled. If no parameter is entered DOS will display the current state of Ctrl-Break checking.

format: BREAK [ON] [OFF]
example: BREAK ON
result: causes DOS to check for Ctrl-Break whenever a program requests any DOS function.

COMP—[E]
Compare causes the contents of a file or set of files defined by global characters to be compared to the contents of another file or set of files. If 10 mismatches are encountered, processing will end.

format: COMP [d:][path][filename[.ext]]
example: A>COMP A:\PAY\TIMEDAT C:\SALES\JUNE\NY.DAT
result: causes the file named TIME.DAT under the subdirectory PAY on the diskette in drive A to be compared with the file names NY.DAT on the fixed disk located in the path SALES\JUNE.

CHECKDIR—[E]
Check directory can be used to change the directory of a default or specified drive or to display the current directory path of a drive.

format: CHECKDIR [d:][path]
Note: If the path is omitted the current directory path of the default or specified drive will be displayed.
example: A>CHECKDIR
result: changes current directory of drive A to its root directory.
example: A>CHECKDIR C:..
result: changes the current directory of drive C to its parent directory.
example: A>CHECKDIR C:\SALES\JUNE
result: changes the current directory of drive C to JUNE.

CHKDSK—[E]
Check disk causes an analysis of the directories and the File Allocation Table and provides a disk and memory status report.

format: CHKDSK [d:][path][filename][/F][/V]
where: filename causes a display of the number of noncontiguous areas occupied by the file(s).
/F causes CHKDSK to automatically correct errors found in the File Allocation Table.
/V causes CHKDSK to display the directories as it progresses and to provide additional information about any errors that are encountered.
example: A>CHKDSK C:\SALES\JUNE
result: causes the files on the fixed disk to be analyzed and the results to be routed to the printer.

CLS—[E]
Clear screen clears the display screen and causes the default drive DOS prompt to be displayed.

format: CLS
example: A>CLS
result: clears the screen and displays the prompt A>.

COMP—[E]
Compare files causes the contents of a file or set of files defined by global characters to be compared to the contents of another file or set of files. If 10 mismatches are encountered, processing will end.

format: COMP [d:][path][filename[.ext]]
example: A>COMP A:\PAY\TIMEDAT C:\SALES\JUNE\NY.DAT
result: causes the file named TIME.DAT under the subdirectory PAY on the diskette in drive A to be compared with the file names NY.DAT on the fixed disk located in the path SALES\JUNE.
COPY—[I]
Copy causes one file or a set of files defined by global characters to be copied to the same or to another disk.

format: COPY [/A]/[B]/[d]/[path]/[sourcefile] [/ext]/[A]/[B]/[d]/[path]/[targetfile] [/ext]
where: /V causes DOS to verify copying by performing a verify operation.
When used with a source file: /A causes the file to be treated as an ASCII file and copied up to the first end-of-file marker.
/B results in the entire file being copied.
When used with a target file: /A causes an end-of-file character to be added as the last character of the file.
/B causes no end-of-file character to be added.

Note: Different directories must be specified if files are copied using the same disk. If copying is to or from a reserved device name the /A mode must be used.

example: C> COPY A:\VC: W
result: copies all the files on the diskette in drive A to the fixed disk.

CTTY—[I]
Change console permits the standard I/O console to be changed to an auxiliary console or permits the restoration of the keyboard and screen as the computer’s standard I/O devices.

format: CTTY devicename
Note: Use CTTY CON to return control of the console back to the computer. To copy text files directly from the keyboard after using this command use COPY COMn filename, with two returns required to close the destination file.

example: A> CTTY COM1
result: causes a remote terminal linked to the computer on the first communications port to function as the computer’s terminal.

DATE—[I]
Date permits a date to be entered or the present system date to be changed. If no parameters are entered DOS will display the current date and request a new date to be entered.

format: DATE [mm {*:} dd {*:} yy]
where: 1<mm<12 and represents the month
1<dd<31 and represents the day
80 8y8<99 and represents the year
1980 1999

example: A> DATE 4/1/84
result: enters April 1, 1984 as the present system date.

DEL—[I]
Delete or erase causes a file or set of files defined by global characters to be deleted from a designated drive or the default drive.

format: DEL [/A]/[path]/[filename]/[ext]
Note: If no path is specified the file(s) indicated in the command will be deleted from the current directory. If no file is specified, all files in the current directory will be deleted.

example: C> ERASE A:\PAY\*.DAT
result: causes all files on the diskette in drive A in the PAY subdirectory that have an extension of .DAT to be erased.

DIR—[I]
Directory causes all directory entries or only those for a specified subdirectory, file or set of files using global characters to be displayed.

format: DIR [/P]/[W]/[path]/[filename]/[ext]/[/P]/[/W]
where: /P causes the display to pause when the screen is full. Pressing any key causes the listing to resume.
/W causes a wide display of the directory with up to 5 filenames displayed on each 80 column line.

Note: If a path is specified, the command causes a listing of files in the specified directory. Otherwise the current directory is listed.

example: A> DIR C:SALES\JUNE
result: causes all directory entries in the subdirectory JUNE on the hard disk to be listed.

DISKCOMP—[E]
Diskette compare causes the contents of the diskette in the first drive specified to be compared to the contents of the diskette in the second specified drive.

format: DISKCOMP[/d1][/d2]/[/P]/[/8]
where: /1 causes only the first side of a double-sided diskette to be compared.
/8 causes diskettes to be compared on an 8-sector-per-track basis.

Note: Unless the /1 and/or /8 parameters are used the number of sides and sectors to be compared will be based upon the diskette examined by DOS that is in the drive specified by the first drive parameter. A single drive comparison occurs by specifying the same drive parameter. If the second drive parameter is omitted the default drive will be used as the second drive.

example: A> DISKCOMP /1
result: causes a single drive comparison on only one side of the diskette using drive A.
DISKCOPY—[E]

Diskette copy causes the contents of the diskette in the source drive to be copied to the diskette in the target drive. If the target diskette is unformatted, this command will format that diskette prior to the copy operation being performed.

format: DISKCOPY [source d:][target d:][/1]

where: /1 causes only the first side of a diskette to be copied.

Note: Omitting both drive parameters results in a single drive copy operation. Omitting the second drive parameter causes the default drive to be used as the target drive unless the default drive is specified as the source drive, which will also cause a single drive copy operation.

example: A>DISKCOPY /1
result: causes a single drive copy operation using drive A.

EXE2BIN—[E]

Exe to bin converts an EXE file into a BIN file which is compatible with a COM file.

format: EXE2BIN [d:][path][filename][.ext]

Note: The first filespec is the input file to be converted. It will be placed in the file named in the second filespec. If no drive is specified the drive of the input file will be used and if an output filename is not specified the input filename will be used. If the new file is not given an extension .BIN will be used.

example: EXE2BIN A:SOR T E.R. REL
result: converts the file name SORTER.REL on the diskette in drive A into a BIN file of the same name on the fixed disk.

FORMAT—[E]

Format initializes a disk to a recording format required by DOS, destroying any data previously recorded.

format: FORMAT [target d:][/S][/I][/B][/V][/B][/4]

where: /S causes the operating system files to be copied from the default drive to the target diskette or hard disk.
/I causes the target diskette to be formatted for single-sided use.
/I causes the target diskette to be formatted as a double-sided diskette in a high capacity drive.
/I causes the target diskette to be formatted for use at 8 sectors per track. If not specified a default of 9 sectors per track is used.
/V causes the command to request a volume label that will be written onto the disk.

Note:

/8 causes the command to allocate space for two .COM files and create an 8-sect or per-track diskette. This permits any version of DOS to be placed on the diskette through the SYS command.

<table>
<thead>
<tr>
<th>parameter</th>
<th>utilization/result</th>
</tr>
</thead>
<tbody>
<tr>
<td>/1 and /B</td>
<td>diskette only</td>
</tr>
<tr>
<td>/V</td>
<td>cannot use with /B</td>
</tr>
<tr>
<td>/N</td>
<td>only DOS 3.0 applicable</td>
</tr>
<tr>
<td>/V and /B</td>
<td>720 kb /B, /V</td>
</tr>
<tr>
<td>/N and /B</td>
<td>1.2 Mb /B, /V</td>
</tr>
<tr>
<td>/F</td>
<td>fixed disk /F, /V</td>
</tr>
</tbody>
</table>

example: A>FORMAT /S/V
result: causes the diskette in drive A to be formatted, the operating system to be copied and the user to be prompted to enter a volume label to be assigned to the diskette.

GRAFTABL—[E][3.0]

Graphics table permits the ASCII characters 128 to 256 to be displayed on the color/graphics adapter.

format: GRAFTABL

example: C>GRAFTABL
result: causes a table of additional character data to be loaded into memory for use by the color/graphics adapter.

GRAPHICS—[E]

Graphics permits the contents of a graphics display screen to be printed on the IBM PC's 80 cps dot matrix printer whenever the Shift and PrtSc keys are pressed.

format: GRAPHICS

example: A>GRAPHICS
result: causes a screen dump module to be loaded into memory, increasing the resident size of DOS by 688 BYTES. Thereafter, pressing Shift and PrtSc keys causes the contents of the graphics display to be printed.

Note: Under DOS 3.X five printer types are added, with the graphics printer the default printer.

JOIN—[E][3.1]

Join causes DOS to connect a drive to a directory on another drive, resulting in a single directory structure from two separate directories.

format: JOIN d:d:\directory

example: C>JOIN A:C:\DRIVEA
result: places the diskette drive A directory under the fixed disk drive C directory's root.

Note: JOIN by itself displays the status of drives previously JOINed.

e.g.: C>JOIN gives A:=C:\DRIVEA

LABEL—[E][3.0]

Label allows you to create, change or delete a volume label up to 11 characters in length on a disk or diskette.

format: LABEL[d:][volume label]

example: C>LABEL A:SALES85
M,f

{MD

Make directory causes a subdirectory to be created on the default or on a specified drive.

format: `{MD

example: A>MD C:\REVENUE

result: causes the creation of a new subdirectory called REVENUE on the
fixed disk under the root directory for disk C.

MODE—{E

Mode can be used to (1) adjust the output mode of the printer, (2) adjust a
monitor connected to the color/graphics adapter, (3) set options of an
auxiliary device, or (4) cause printer output to be routed to an
asynchronous communications adapter.

format: `MODE LPT# ; (n); [m]; [P]

where:
# is the printer number (1, 2 or 3)
(n) is 80 or 132 print columns per line
m is 6 or 8 lines per inch vertical spacing
P causes a continuous retry upon time-out errors.

Note: Default printer mode at power on is 80 print columns and 6 lines per inch
vertical spacing.

example: A>MODE LPT1:132,6

result: sets the mode of operation of the first printer to 132 print columns and 6 lines
per inch vertical spacing.

format: `MODE { n

where:
(n) is 40, 80, BW40, BW80, CO40, CO80, or MONO and defines the display
width, color and/or display adapter.
m defines the display shift as R for right or L for left.
T requests a test pattern that can be used for display alignment.

Note: The display can be shifted 1 character for 40 columns or 2 for 80 columns in
either direction when the T parameter is specified.

example: C>MODE 80, L,T

result: sets the display mode to 80 characters per line and shifts the display two
character positions to the left.

format: `MODE COMn:bps(,parity[,data [,stop[,P]]])

where:
(n) defines the communications adapter number, 1 or 2.
bps defines the data rate as 110, 150, 300, 600, 1200, 2400, 4800 or 9600.
parity is N (none), O (odd) or E (even) with the default being even.
data defines the number of data bits and is 7 or 8 with 7 the default value.
stop defines the number of stop bits and is either 1 or 2. For 110 bps the
default is 2, for all other bps the default is 1.

PATH—{I

Path causes an extended search path to be set up so that when a command or batch filename is entered
and not found in the current directory of the specified drive, DOS will automatically search the
directories established by this command in the order they were entered. This command does not
work with data files.

format: `PATH[:d:][path][:[:d:][path]...]

Note: Entering PATH with no parameters causes the search paths currently
defined to DOS to be displayed.
Entering PATH followed by a
semicolon results in the elimination of an extended search path.

example: A>PATH:PAY:\GRAPH\GPROG

result: causes DOS to search the current
directory of the default drive and then
the directories of PAY and
GRAPH\GPROG until it finds the
requested command or batch file.
PRINT—[E]
Print permits up to 10 (32 under DOS 3.1 and above) specified files that include files defined by global characters to be printed concurrent with other computer tasks. When entered without any parameters, the names of the files currently queued for printing will be displayed.

format: PRINT][d:][filename][.ext][/T][/C][/P] where: /T terminates the printing of any files in the print queue.
/C results in the preceding filename and any following filenames being cancelled from the print queue until a /P is found or the Enter key is pressed.
/P results in the preceding and any following filenames being added to the print queue until a /C is found on the line or the Enter key is pressed.
/Q:n results in the print queue being set from 1<n<32 under DOS 3.1 and above. If not included, a default value of 10 is assumed.

Note: If no / parameters are specified /P is assumed. The first PRINT command issued after system startup will request the name of the device for listing files. The default is PRN; although you can specify any output device.

eexample: A>PRINT C:\SALES \* .BAS/P
result: adds all files with the extension .BAS in the SALES subdirectory on the fixed disk to the print queue.

PROMPT—[E]
Prompt causes a new system prompt to be set.

format: PROMPT [text and/or predefined strings]
where: predefined strings of the form $x$ can be imbedded into text and x has the following meanings:

- a : the "I" character
- b : the system date
- c : the ESC character
- d : the "O" character
- e : backspace and erase
- f : previous character
- g : the "C" character
- h : the default drive
- i : the current drive
- j : the "E" character
- k : system time
- l : DOS version
- m : CR LF sequence
- n : any other character preceded by a dollar sign will be treated as a null character.

Note: A$g causes a new system prompt "$Enter command A$g". Example: A> PROMPT Enter command A$g
result: causes a new system prompt "$Enter command A$g"

RECOVER—[E]
Recover permits one or more files to be removed if defective sectors occurred on the recording medium.

format: RECOVER[d:]path][filename][.ext]
where: if only a device is specified all files on the designated disk will be recovered.

result: returns the file TIME.DAT on the diskette in drive A to be recovered.

RENAME—[I]
Rename causes the name of a file or set of files specified by global characters to be renamed to the name specified by the second parameter.

REPLACE—[E][3.2]
Replace permits the selective replacement or addition of files from a source drive onto the specified target drive.

Note: Global filename characters can be used to specify files on the source drive.

example: C>REPLACE A:\SALES.* C:/A
result: causes all files on drive A with the name SALES that do not exist on drive C to be copied to that drive.
RESTORE—[E]
 Restore permits one or a set of files defined by
global characters previously backed up onto a
diskette to be restored to a fixed disk.
format: RESTORE d: [path][filename]
where: /S causes backed up files in all
subdirectories to be restored in
addition to the files in the specified
directory.
/P causes RESTORE to prompt the
user prior to restoring files that were
changed since they were last backed
up or that were marked read-only.
example: A>RESTORE A:C:* .DAT
result: causes each file on the backup diskette
with an extension of .DAT to be
restored to the current directory of the
fixed disk.

SELECT—[E][3.0]
 Select allows you to select the keyboard layout and
the date and time format.
format: SELECT xxx yy
where: xxx specifies the country code date
and time format, currency symbol and
decimal separator, and yy specifies the
keyboard layout DOS is to use.

SET—[I]
 Set causes strings to be inserted into the command
processor's environment that become available for
use by other commands and applications.
format: SET [name][parameter]
Note: If no parameters are specified the
current environment will be displayed.
If only a name is specified the current
occurrence of that name and
parameter assignment will be removed
from the environment.
example: SET PATH=C:\SALES\JUNE
result: causes the string
 "PATH=C:\SALES\JUNE"
to be added to the environment.

SUBST—[E][3.1]
 Substitute allows you to substitute one drive speci-
 fier to refer to another drive or path.
format: SUBST [d:][path]
example: A>SUBST G:C:\REPORTS\FILE
result: the path \REPORTS\FILE on drive C
can be referenced by drive G.
Note: Entering SUBST without parameters
displays the current substitutions in
effect.

SYS—[E]
 System causes the operating system files to be
 transferred from the default drive to the specified
 drive.
format: SYS d:
example: C>SYS A:
result: causes the system files to be
transferred from the fixed disk to the
diskette in drive A.

TIME—[I]
 Time permits you to enter a time or to change
the current system time.
format: TIME [hh:mm:ss:xx]
where: 0<hh<23 and hh represents hours
0<mm<59 and mm represents minute:
0<ss<59 and ss represents seconds
0<xx<99 and xx represents
hundredths of a second.
Note: If any fields are omitted, the remaining
fields are set to zero. Entering TIME
without any parameters causes the
current time to be displayed and the
system to request a new time.
example: C>TIME 12:
result: sets the system clock to noon.

TREE—[E]
 Tree causes all directory paths found on the default
 drive or on a specified drive to be displayed and
optionally lists the files on each subdirectory.
format: TREE[d]/[F]
where: /F causes the names of all files in each
subdirectory to be displayed.
example: C>TREE /F>PRN:
result: causes all the subdirectories and
filenames on the fixed disk to be listed
on the printer.

TYPE—[I]
 Type causes the contents of a specified file to be
displayed on the screen or redirected to a desig-
nated output device.
format: TYPE [d:][path][filename][.ext]
Note: Only files saved as ASCII text may
appear in a legible format. Global
filenames characters cannot be used in
the filename nor in the extension.
example: A>TYPE C:\SALES\JUNE\NY.DAT>PRN:
result: causes the contents of the file NY.DAT
located on the directory path
SALES\JUNE on the fixed disk to be
displayed on the printer.

VER—[I]
 Version causes the current version number of DOS
you are using to be displayed.
format: VER
example: C>VER
result: causes the version of DOS to be
displayed.

VERIFY—[I]
 Verify causes data that has been written onto a disk
to be verified by performing a read after each write
operation. If entered without parameters the pre-
sent state of the command will be displayed.
format: VERIFY [ON] [OFF]
example: C>VERIFY ON
result: causes the verify feature to be enabled.
DOS FILTER COMMANDS

**VOL—[E]**

*Volume* causes the diskette volume identification of the diskette in the default or specified drive to be displayed.

**format:** VOL[drive:]

**example:** C> VOL A:

**result:** causes the diskette volume identification of the diskette in drive A to be displayed.

**XCOPY—[E][3.2]**

*External copy* permits groups of files to include lower level subdirectories to be selectively copied.

**format:** XCOPY [drive:][path][filename.ext][drive:][path] [filename.ext][/A|/D|/E|/M|/P] [/S|/V|/W]

**where:**
- /A causes only files with their archive bit set to one to be copied.
- /D copies only those files whose date is the same or later than the date specified.
- /D:mm-dd-yy or /D:mm-dd
- /E causes subdirectories on the target disk to be created even if they are empty.
- /M copies files whose archive bit is set and then resets the archive bit of the source file.
- /P causes DOS to prompt you prior to copying each file.
- /S causes all files in the source directory and all files in all directories under the starting source directory to be copied.
- /V causes DOS to verify by reading after each write operation that the sectors written onto the target diskette are correct.
- /W causes DOS to wait for the operator to insert diskettes prior to executing the XCOPY command.

**Note:** XCOPY does not support copying to or from reserved device names nor can the command copy hidden or deny-read files.

**example:** XCOPY A:\MATH C:\VS

**result:** causes all files under the MATH subdirectory as well as all subdirectories and files in those subdirectories under the MATH subdirectory on drive A to be copied to drive C, with their placement under the root directory on that drive.

**FIND—[E]**

*Find* causes each line in a specified file to be examined for the occurrence or nonoccurrence of the string indicated in the command and routes the appropriate lines to the standard or a specified output device.

**format:** FIND [/V][/C][/N]"string"[drive:][path] filename[ext]...

**where:**
- /V causes all lines NOT containing the specified string to be displayed.
- /C causes only a count of matches to be displayed.
- /N causes the relative line number of each matching string to be displayed ahead of the line from the file.

**example:** C> DIR; SORT; FIND*12:00>PRN:

**result:** causes all files on the fixed disk containing 12:00 in the directory to be displayed on the printer in sorted order.

**MORE—[E]**

*More* causes data from the standard or a specified input file to be displayed one screen at a time. When the screen is filled the message MORE is displayed and pressing any key will cause the next screen to appear.

**format:** MORE

**example:** C> MORE< SORT/R<TXT.DAT

**result:** reads the file TXT.DAT on the fixed disk, sorts it in reverse sequence and displays it one screen at a time.

**SORT—[E]**

*Sort* causes data to be read from the standard or a specified input device, sorted, and then written onto the standard or a specified output device. Files up to 63K in size can be sorted.

**format:** SORT [/R]{/N}n

**where:**
- /R results in a reverse sort being performed.
- /N causes the sort field to commence in column n. If not specified the sort will begin in column 1.

**example:** C> SORT/R<A:\BUDGET\EAST.DAT>C:\EAST.DAT

**result:** causes the file EAST.DAT in the subdirectory BUDGET on the diskette in drive A to be sorted in reverse order and the output written onto the file EAST.DAT in the root directory of the fixed disk.
Dynamic I/O Redirection

I/O redirection permits programs to have their input or output data streams temporarily redirected to specified devices.

Output Redirection

format: `command { > } { filespec }

Note: If output is redirected to a file, DOS first checks to see if the file exists. If it exists, DOS will cause the output to overwrite the file unless two greater than symbols (>) are included in the output redirection, which then causes DOS to append the requested output to the end of the file. If the files does not exist, DOS will create the requested file.

example: A>DIR>LPT1:
result: sends the directory listing to the first parallel printer.

example: A>BASIC\PAY\PAY.BAS>>\PAY\TIM.DAT
result: runs the BASIC program PAY.BAS and directs the output to be appended to the file TIM.DAT.

Input Redirection

format: `command< { reserved name } { filespec }

example: C>BASIC\SALES\SALES.BAS<\SALES\JUNE\NY.DAT
result: executes the BASIC program SALES.BAS in the subdirectory SALES with input to the program occurring from the file NY.DAT in the JUNE subdirectory.

Combining I/O Redirection

example: A>BASIC SCHEDULELIST.DAT >REPORT.DAT
result: executes the BASIC program SCHEDULELIST.DAT while program output is redirected to the file REPORT.DAT.

Piping of Standard I/O

Piping permits the chaining of commands and programs with the automatic redirection of standard I/O, permitting the screen output of one command to be used as the keyboard input to another command or program.

format: `command | `command
example: A>DIR C;SORT>PRN:
result: causes the directory listing of the fixed disk to be sorted and then listed on the printer.

Batch Commands and Batch Processing

DOS commands can be entered into a batch file. This file can be executed upon demand by entering the name of the file or automatically whenever the system is powered on. Batch files must have a file extension of .BAT and can be created by EDLIN or by using the COPY command to build a file from the keyboard console (e.g., A>COPY CON: MYFILE.BAT).

Batch Labels

Labels can be inserted into a batch file by prefixing the label with a colon (:).
example: :label command
example: :START.DIR

Batch File and Replaceable Parameters

Up to 10 dummy parameters can be included in a batch file. These parameters will be replaced by values supplied by the operator during the execution of the file. Dummy parameters %0 thru %9 can be specified, with %0 always replaced by a drive specifier, if required, and the filename of the batch file.

example: A>COPY CON:MASTER.BAT
result: executes the program SALES.BAS on the fixed disk.

The AUTOEXEC.BAT File

This special file is searched for by DOS every time the computer is powered on or a system reset is performed. If this file is found in the root directory of the drive from which DOS is initialized, it will be automatically executed. Any DOS command or series of commands can be contained in this file.

example: DATE
result: requested date
example: PAUSE INSERT 3 PART PAPER
result: pause and display message
example: BASICA C:\SALES\SALES.BAS
result: execute the program SALES.BAS on the fixed disk.
**Batch Commands**

**ECHO**

*Echo* enables or disables the display of DOS commands that are executed from within a batch file.

*format:* `ECHO [ON] [OFF] [message]`

*example:* `ECHO OFF`

*Note:* If `ECHO` is entered without parameters the current `ECHO` state is displayed. Any message included in the command will be displayed regardless of the `ECHO` state. The default setting of `ECHO` is ON.

**FOR**

*For* permits iterative execution of a specified DOS command.

*format:* `FOR %% variable IN (file set) DO command`

*Note:* The `%%` variable is sequentially set to each member of the file set and the specified command is then executed. Global characters can be used in filenames and extensions; however, pathnames cannot be used with filenames. This command cannot be nested.

*example:* `FOR %%X IN(C:*BAT A:\BAK)DO TYPE %%X>PRN:`

*result:* causes all batch files on the fixed disk and all backup files on the diskette in drive `A` to be listed on the printer.

**GOTO**

*Goto* causes an unconditional branch to the specified label to occur.

*format:* `GOTO label`

*example:* `GOTO START`

*result:* causes an unconditional branch to the label `START`.

**IF**

*If* permits the conditional execution of DOS commands in a batch file. When the IF parameter's condition is true the command is executed, otherwise the command is skipped.

*format:* `IF [NOT] condition command`

*where:* condition parameters are:

- `ERRORLEVEL number`
- `String == String 2`
- `EXIST filespec`

*example:* `IF EXIST C:\SALES\JUNE\NY.DAT ECHO DATA SAVED`

*result:* causes the message `DATA SAVED` to be displayed in the file `NY.DAT` if found on the fixed disk in the indicated directory.

**PAUSE**

*Pause* causes a suspension of batch processing operations and displays the message "Strike a key when ready...". An optional remark up to 121 bytes in length will be displayed if included in the command.

*format:* `PAUSE[remark]`

*example:* `PAUSE PLACE MULTIPART PAPER IN PRINTER`

*result:* displays the message "PLACE MULTIPART PAPER IN PRINTER," then "Strike a key when ready..." and suspends batch operations until a key is pressed.

**REM**

*Remark* causes remarks from within a batch file to be displayed.

*format:* `REM[remark]`

*Note:* The remark can be up to 123 bytes in length. However, if `ECHO OFF` the remark will not be displayed.

*example:* `REM this sort may take up to 5 minutes.`

**SHIFT**

*Shift* permits command lines to make use of more than 10 replaceable (`%0 thru %9`) parameters.

*format:* `SHIFT`

*Note:* execution of this command causes all parameters on the following command line to be shifted one position to the left. Thus, the `%0` parameter is replaced by the `%1` parameter and so on.

*example:* `SHIFT`
The Configuration File

The configuration file is a special type of batch file that contains commands used to configure your system. Each time you power on your computer or perform a system reset DOS searches the root directory of the drive it was initiated from for the file CONFIG.SYS.

utilization: Specify country date and time format.
Maximum number of drives that can be open at one time.
Name of a file containing a device driver.

example: COPY CON: CONFIG.SYS
COUNTRY=001
DEVICE=VDISK.SYS 320 512 64
BUFFERS=X

Configuration Commands

Configuration commands can be placed in a CONFIG.SYS file and are used to set up your system each time DOS is initialized.

BREAK
Break enables or disables DOS checking for Ctrl-Break. If not included in the CONFIG.SYS file a default value of BREAK=OFF is set.

format: BREAK=[ON|OFF]

Note: With BREAK=OFF, DOS checks for Ctrl-Break only during screen, keyboard, printer and asynchronous communication operations.

example: BREAK=ON
result: instructs DOS to check for a control break whenever a program requests DOS to perform any function.

BUFFERS
Buffers causes the specified number of disk buffers to be allocated in memory when DOS is started.

format: BUFFERS=m
where: m is a number between 1 and 99.
Note: If the command is not included in a CONFIG.SYS file a default value of 2 (3 for the PC AT) is used.

example: BUFFERS=15
result: causes 5 disk buffers with each buffer increasing the resident size of DOS by 528 bytes to be allocated in memory when DOS is started.

FILES
Files permits you to specify the maximum number of file handles that can be open at one time.

format: FILES=X
where: X must be a number between 8 and 255. If the command is not specified in a CONFIG.SYS file a default value of 8 is used.

example: FILES=20
result: permits up to 20 file handles to be open at the same time when DOS is initiated.

COUNTRY
Country causes DOS to set the date and time format as well as the currency symbol and decimal separator for a country based upon the 3 digit country code specified in the command.

format: COUNTRY=XXX
where: XXX is the 3-digit international country code for the telephone system of the country.

Device permits you to specify the name of a file containing a device driver.

format: DEVICE=(d:)[\path\filename[.ext]]
Note: Device drivers included on the DOS diskette are:
ANSI.SYS an enhanced standard input and output device driver.
DRIVER.SYS a block device driver that permits disks to be referenced to a logical letter.
VDISK.SYS a virtual disk device driver.

example: DEVICE=VDISK.SYS 128 512 64
result: causes a virtual disk device driver to be loaded when DOS is started. The resulting virtual disk will be 128K bytes in size, have 512 byte sectors and permit 64 directory entries.

LASTDRIVE
Lastdrive sets the maximum number of disk drives that can be accessed.

format: LASTDRIVE=letter
where: letter is any alphabetic character A through Z that represents the last valid drive letter DOS can use. If not specified a default value of E is used.

example: LASTDRIVE=F
result: causes the number of drives that may be accessed to be set to 6.
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Ravi Shankar: English Interview

6

English
Interview Ravi Shankar

Techn. verwendbar: ja, techn. nicht verwendbar: nein

Aufgeboten in: Kassette

Bestellung

Absender: Pastoana, München, Köln

Empfänger: ZR/Musik, Frau Schramm

Tonträger zurückkehren: Datum

Unterschrift

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Gesamtzeit

Min./Sek. | Sendefr. | Bendezeit | Betriebsart | Kostenstelle |

Archivierung

Kennz.: Sprache: Archivverantwortlich: Archivnummer:

Tonband: Kassette

mono | stereo | 4721
findings of the Workshop on Archival and Documentation Techniques, Singapore 27th November — 8th December

After two weeks of discussions and deliberations working groups of the participants of 14 countries arrived at the following findings concerning archival techniques in the area of tapes and records in radio:

The work of tape and record libraries is one of the backbones of production in radio broadcasting. Moreover tape libraries in many radio stations in Asia and the Pacific contain recording materials of utmost value for the preservation of the national heritage. This should be recognised by management, so sufficient manpower and sufficient budgetary means for working facilities should be allotted to the archives.

Training facilities for archival staff should be generous in order to enhance the effectiveness of the archivists.

Concerning the methods and techniques used in radio archiving, namely registration, selection, formal description, content analysis, storage and information retrieval the participants arrived at the following findings:

-- Selection

a) As in a number of archives valuable historical recordings on national and international events are not available, an informal programme exchange between stations is highly recommendable.

b) The archivists should be integrated into the selection process.

c) A standardization of selection criteria is recommended for each country represented to avoid a biased or too subjective selection of archive material.

d) Periodical re-selection of material is necessary to avoid a growing stock of meaningless material.

-- Formal description

a) The system of registration of sound materials right after production should be introduced or improved.

b) Guidelines for cataloguing should be worked out resulting in cataloguing manual.
To perform content analysis it is necessary to listen to the tapes which in turn requires:

a) trained and sufficient manpower
b) sufficient equipment (tape machines)
c) the use of data-checking references

Storage

a) In order to maintain the quality of archived materials air-condition and cleaned premises are essential
b) Regular room cleaning and additional record covers may reduce the problems produced by dust
c) Regular rewinding (once per year) of tapes can reduce the problems of print-through
d) The problem of lacking space can be partly reduced by combining short takes on longer tapes, up-extension of racks or selection and re-storage of rarely used materials
e) In order to retrieve loans, strict lending rules must be implemented

Information retrieval

With an increasing number of tapes and discs to be archived it might be useful to install a computer-based archival and retrieval system. In case tapes and discs amount to, say, 30,000 items or more.