

# TurboImage/3000 Fundamentals

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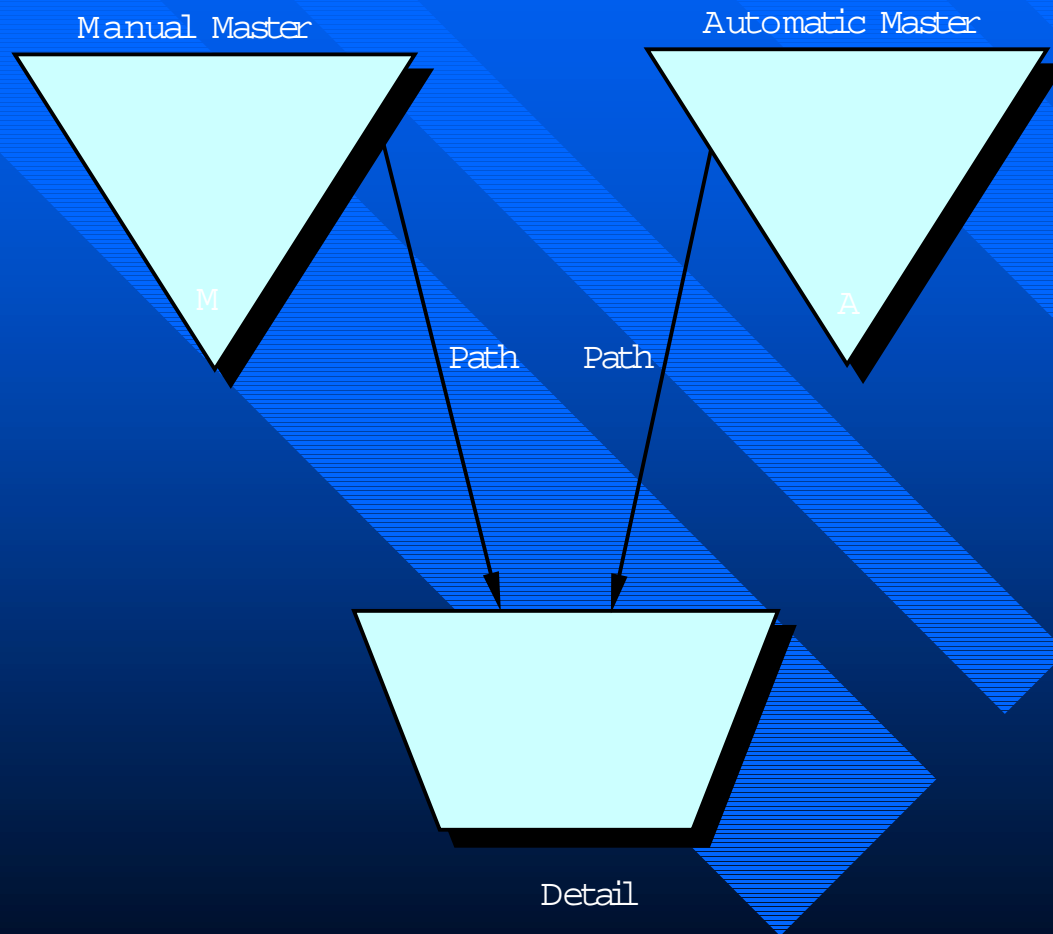
# Contents

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# Image Terminology

- ITEM - Field
- ENTRY - Record
- SET - File
- BASE - Collection of Files

# HP TurboIMAGE Data Sets



# Master Data Sets

- Serves as Indexes to related Details
- Contains ONE search item with Unique Values
- May be related to up to 16 Details
- Uses Hashing Algorithm to find matching Entry
- Two Types: Manual or Automatic

# Manual Masters

- May be stand alone
- May contain data Items
- Entries **EXPLICITLY** added or deleted
- Detail Entries can be added only if matching Master Entry exists

# Automatic Masters

- Can not be stand alone
- Only contains one data Item - Key
- Entries **IMPLICITLY** added or deleted

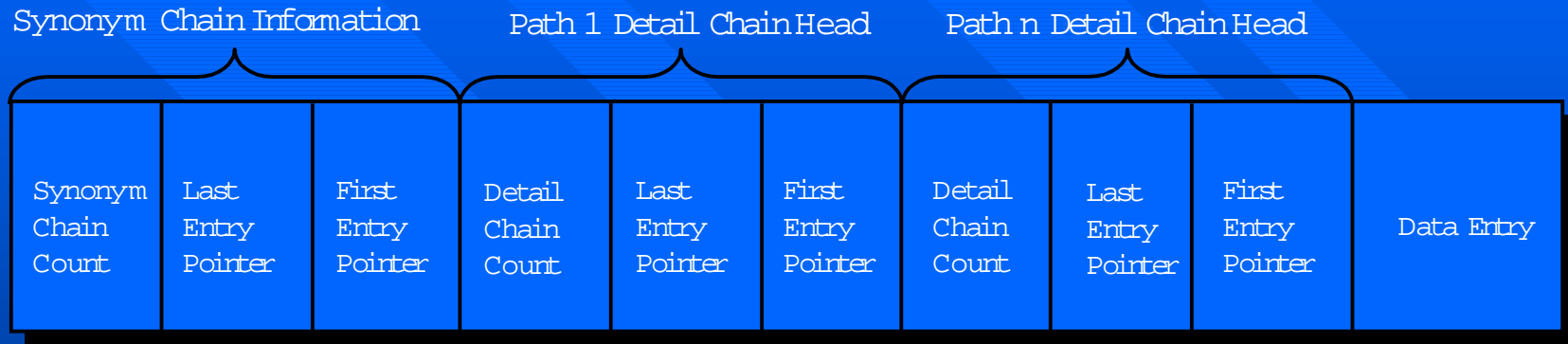
# Detail Data Sets

- Used to record information about related events
- Allows retrieval of all entries for a unique key
- Defined with from 0 to 16 search items
- Can be multi-indexed from the same Master
- Can have sorted chains

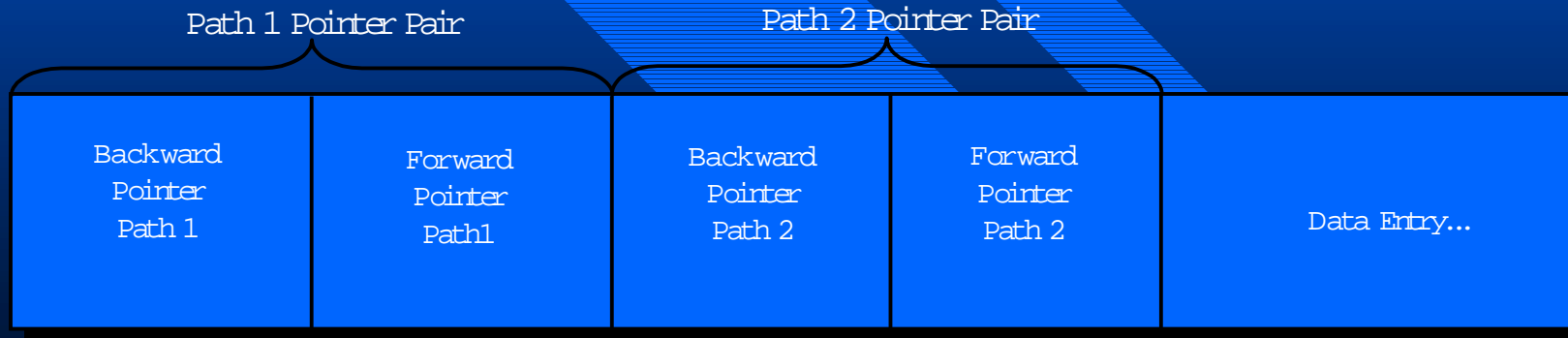


# Media Record

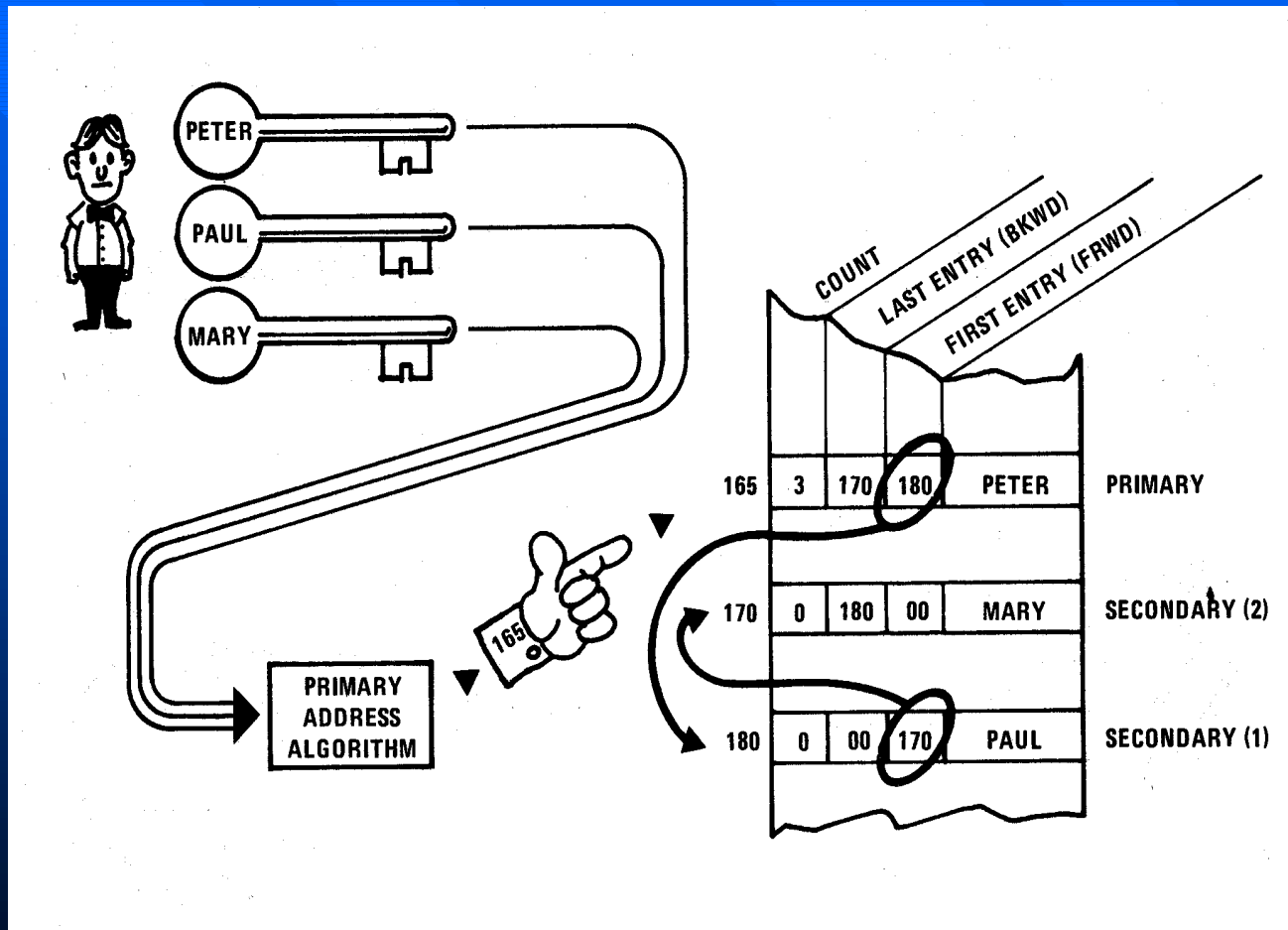
## Master



## Detail



# Master Synonym Chains



# Block Structure

Bit Map



# Access Methods

- Serial
- Directed
- Calculated (Masters Only)
- Chained

# Serial Access

- Most basic method of Entry selection
- Access begins at the First or Most Recently accessed Record location
- Sequentially examines adjacent Records until the closest Entry is located
- Access may be either Forward or Backward

# Directed Access

- The Relative Record Number is used for the Retrieval
- Migrating Secondaries may cause unexpected results in a Master Set

# Calculated Access

- Used to access *Master* Entries based on the value of the Search Item
- The Record Number is determined by the Hashing Algorithm
- Synonyms may occur

# Chained Access

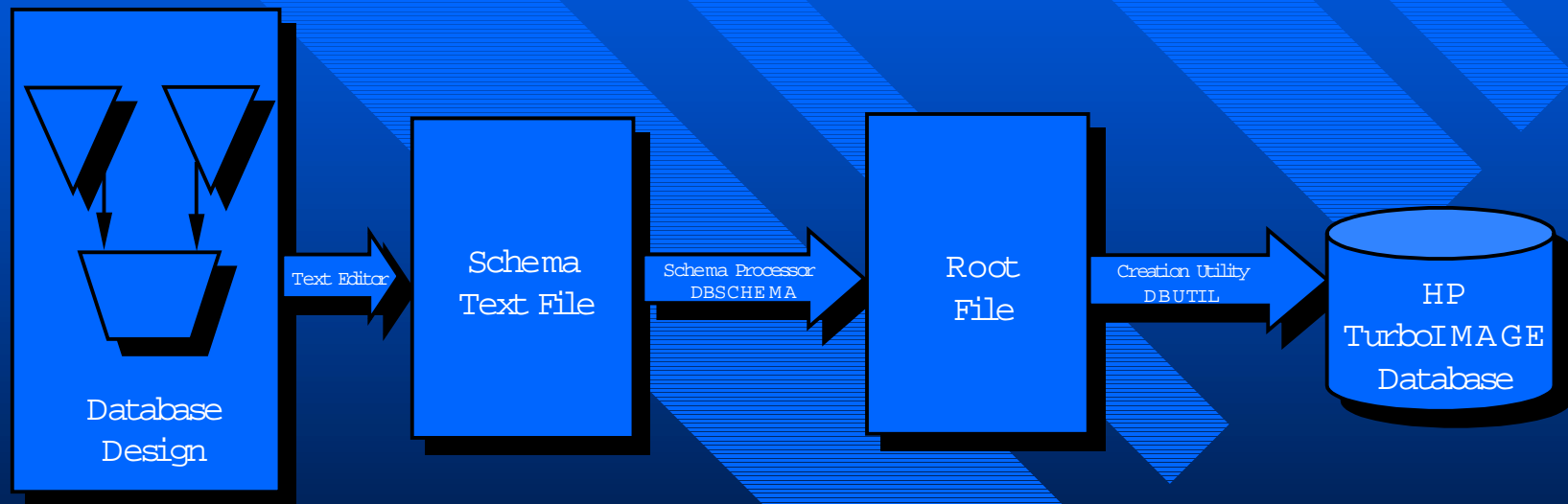
- All Entries having a common Search Item value are on the same Chain in a Detail Set
- Access can be Forward and/or Backward on the Chain
- The First Record on the Chain has a Zero Backward Pointer
- The Last Record on the Chain has a Zero Forward Pointer



# Utilities

- DBSCHEMA
- DBUTIL
- DBSTORE/DBRESTORE
- DBUNLOAD/DBLOAD
- DBRECOV
- QUERY

# Overview of Database Creation



# Schema Structure

- BEGIN DATA BASE data-base-name;
- PASSWORDS: number password;
- ITEMS: name sub-item-count type sub-item-length read-class/write-class;
- SETS: name type read-class/write-class
  - ENTRY: name (path-count); (Masters)
  - ENTRY: name (!master(sort)); (Details)
  - CAPACITY: number;
- END.

# DBSCHEMA Execution

- FILE DBSTEXT = MYSCHEMA
- FILE DBSLIST;DEV=LP
- RUN DBSCHEMA.PUB.SYS;PARAM=3

# DBUTIL Parameters

HELP

CREATE

ERASE

MOVE

PURGE

DEACTIVATE

ACTIVATE

ADDINDEX

DROPINDEX

REBUILDINDEX

VERIFY

SET

ENABLE

DISABLE

RELEASE

SECURE

SHOW

EXIT

DETACH

# DBSTORE/DBRESTORE

- Used to Store and Restore a Database to/from Magnetic Tape Volumes
- Copies entire Database including Root File

# DBLOAD/DBUNLOAD

- Used to Load or Unload Data Entries from a Dataset to/from Magnetic Tape Volumes
- Unload can be arranged by Primary Path

# DBRECOV

- Executed after Backup copy of the Database has been restored
- Log File contains Records of all Database modifications
- Reads the Log File and Re-Executes the transactions



# QUERY/3000

- Enter, Modify, or Delete Data Entries
- Retrieve Data that meets selection criteria
- Report on Data that has been retrieved
- Examine Database structure and number of Entries

# QUERY Parameters

DEFINE

FORM

FIND

MULTIFIND

REPORT

LIST

ADD

REPLACE

DELETE

HELP

ALTER

CREATE

DESTROY

DISPLAY

RENAME

XEQ

OUTPUT

# Intrinsics

- DBOPEN - Base,Password,Mode,Status
- DBLOCK - Base,Qualifier,Mode,Status
- DBFIND - Base,Dset,Mode,Status,Item,Argument
- DBGET - Base,Dset,Mode,Status,List,Buffer,Argument
- DBUPDATE - Base,Dset,Mode,Status,List,Buffer
- DBPUT - Base,Dset,Mode,Status,List,Buffer
- DBDELETE - Base,Dset,Mode,Status
- DBINFO - Base,Qualifier,Mode,Status,Buffer
- DBUNLOCK - Base,Dset,Mode,Status
- DBCLOSE - Base,Dset,Mode,Status
- DBERROR - Status,Buffer,Length
- DBEXPLAIN - Status

# Intrinsics Parameters

- BASE - Name of the Database
- PASSWORD - User Class
- DSET - Name of the Dataset
- MODE - Integer
- STATUS - Communication Area
- ITEM - Data Item Name
- LIST - List of Data Items
- QUALIFIER - Data Set/Item Name or Number
- BUFFER - I/O Array Area
- ARGUMENT - Search Key Value
- LENGTH - Error Message Length

# Access Modes - DBOPEN

1- Modify with Enforced Locking Allow Concurrent Modify	1,5
2- Update, Allow Concurrent Update	2,6
3- Modify Exclusive	None
4- Modify, Allow Concurrent Read	6
5- Read, Allow Concurrent Modify	1,5
6- Read, Allow Concurrent Modify	6 and Either 2, one 4, or 8
7- Read, Exclusive	None
8- Read, Allow Concurrent Read	6,8

# Performance

- Minimize Disk I/O
- Use Proper Design Techniques
- Utilize Diagnostic Tools - DBGENERAL and HowMessy
- Manage Dataset Capacities
- Minimize Secondary Chains
- Pack Details
- Reduce Disk Head Contention
- Use DBDRIVER for Intrinsic Timings

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