## One file, three roles

### page 0  header

magic  NEBULADB
version, page size
salt  (16 B, clear)
sealed HeaderPayload

### page 1  catalog

sealed CatalogPayload
next_record_id
free_head
index_root
memory_count
checkpoint_seq

### pages 2..n

record pages
index snapshot pages
free pages

AAD = page number || page role

### ciphertext

len  u16 (clear)
nonce  12 B
ciphertext
tag  16 B

### framing

30 B per page
0.7324% of a 4 KiB page

### the key

Argon2id (19 MiB, t=2)
HKDF -> header key
HKDF -> page key

The same key never leaves the process; the page number and the page role are the only things the AEAD binds a page to.