

Design Document: File Format - Email Data

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1 Goals

The project will be based on our own designed database to store the email message instead of other existing standard libraries. This file describes file storage format of email data. Email data manager in manager layer should handle this format.

2 Design

Email data file contains two parts: Directory File and Content Storage File. Each Content Storage file store 1000 emails' data and Directory File give the pointer to the email content.

2.1 Directory File

In this file, index entries for each email will be record. Suffix for directory file is .df. An index entry has three properties: key, file number, offset.

```
struct Index{
    uint16_t key;
    uint16_t file_nr;
    uint32_t offset;
}
```

2.2.1 Key

Key is the unique key to match index entries from directory file and email content from content storage file.

2.2.2 File Number

File Number is numbers which email contents is belong to.

2.2.3 Offset

Offset is the position where email stays.

2.2 Content Storage File

Email Data is stored in the Content Storage File. Each content storage file can contain 1000 emails. Emails store in the follow format:

```
[uid] [time] [source] [target] [subject] [content]
```

2.3 Unit Test Plan

Unit tests will be run on the UNIX environment.

Unit tests for Email Data File Format will be tested under Email Data Manager in Manager Layer. Details are in

Email Data Manager design doc.