Email System Protocol Descriptor

Service Location

Host: localhost

Port: 12345

Data Encoding

Text-based encoding using UTF-8 with field separator "##".

Transmission Encoding

TCP

Message Separator

"##" delineates fields in both requests and responses.

Protocol Commands

5.1. User Protocol Commands

Command: REGISTER

Request Format:

REGISTER########

Responses:

REGISTER##SUCCESS

REGISTER##USER_ALREADY_EXISTS

REGISTER##INVALID_DETAILS##

REGISTER##INVALID_FORMAT

Sample Exchanges:

Client -> Server: REGISTER##John##Doe##john@voidmail.com##P@ssw0rd!

Server -> Client: REGISTER##SUCCESS

Client -> Server: REGISTER##Alice##Smith##alice@voidmail.com##pass

Server -> Client: REGISTER##INVALID_DETAILS##Password too weak

Client -> Server: REGISTER##Bob

Server -> Client: REGISTER##INVALID_FORMAT

Command: LOGIN

Request Format:

LOGIN####

Responses:

LOGIN##SUCCESS

LOGIN##NO_USER

LOGIN##INVALID_CREDENTIALS

LOGIN##INVALID_FORMAT

Sample Exchanges:

Client -> Server: LOGIN##john@voidmail.com##P@ssw0rd!

Server -> Client: LOGIN##SUCCESS

Client -> Server: LOGIN##unknown@voidmail.com##P@ssw0rd!

Server -> Client: LOGIN##NO_USER

Client -> Server: LOGIN##john@voidmail.com##wrongpass

Server -> Client: LOGIN##INVALID_CREDENTIALS

Client -> Server: LOGIN##john@voidmail.com

Server -> Client: LOGIN##INVALID_FORMAT

5.2. Email Protocol Commands

Command: SENDEMAIL

Request Format:

SENDEMAIL########

Responses:

SENDEMAIL##SUCCESS##

SENDEMAIL##RECIPIENT_NOT_FOUND

SENDEMAIL##INVALID_DETAILS##

SENDEMAIL##FAILURE##

SENDEMAIL##INVALID_FORMAT

Sample Exchanges:

Client -> Server: SENDEMAIL##alice@voidmail.com##bob@voidmail.com##Hello##Hi Bob!

Server -> Client: SENDEMAIL##SUCCESS##12345

Client -> Server:
SENDEMAIL##alice@voidmail.com##unknown@voidmail.com##Hello##Hi!

Server -> Client: SENDEMAIL##RECIPIENT_NOT_FOUND

Client -> Server: SENDEMAIL##alice@voidmail.com##bob@voidmail.com##Hello

Server -> Client: SENDEMAIL##INVALID_FORMAT

Command: GETEMAILS

Request Format:

GETEMAILS## [##INBOX | ##SENT]

(Default box: INBOX)

Responses:

GETEMAILS##SUCCESS###########[##...]

GETEMAILS##NO_EMAILS

GETEMAILS##NO_USER

GETEMAILS##FAILURE##

GETEMAILS##INVALID_FORMAT

Sample Exchanges:

Client -> Server: GETEMAILS##john@voidmail.com

Server -> Client: GETEMAILS##SUCCESS##101##alice@voidmail.com##Meeting##Let's meet##2025-05-03T10:15##false

Client -> Server: GETEMAILS##john@voidmail.com##SENT

Server -> Client: GETEMAILS##NO_EMAILS

Client -> Server: GETEMAILS##unknown@voidmail.com

Server -> Client: GETEMAILS##NO_USER

Client -> Server: GETEMAILS##john@voidmail.com##ARCHIVE

Server -> Client: GETEMAILS##INVALID_FORMAT

Command: LIST_INBOX

Request Format:

LIST_INBOX##

Responses: same as GETEMAILS (response always begins with GETEMAILS##...)

Sample Exchanges:

Client -> Server: LIST_INBOX##john@voidmail.com

Server -> Client: GETEMAILS##SUCCESS##... (as above)

Command: LIST_SENT

Request Format:

LIST_SENT##

Responses: same as GETEMAILS

Command: MARK_AS_VIEWED

Request Format:

MARK_AS_VIEWED##

Responses:

MARK_AS_VIEWED##SUCCESS

MARK_AS_VIEWED##FAILURE##

MARK_AS_VIEWED##INVALID_FORMAT

Sample Exchanges:

Client -> Server: MARK_AS_VIEWED##101

Server -> Client: MARK_AS_VIEWED##SUCCESS

Client -> Server: MARK_AS_VIEWED

Server -> Client: MARK_AS_VIEWED##INVALID_FORMAT

Command: SEARCH_RECEIVED

Request Format:

SEARCH_RECEIVED####

Responses:

SEARCH_RECEIVED##SUCCESS##...

SEARCH_RECEIVED##NO_EMAILS

SEARCH_RECEIVED##FAILURE##

SEARCH_RECEIVED##INVALID_FORMAT

Sample Exchanges:

Client -> Server: SEARCH_RECEIVED##john@voidmail.com##meeting

Server -> Client:
SEARCH_RECEIVED##SUCCESS##102##alice@voidmail.com##Meeting##2025-05-03T10:15##true

Client -> Server: SEARCH_RECEIVED##john@voidmail.com##nomatch

Server -> Client: SEARCH_RECEIVED##NO_EMAILS

Command: SEARCH_SENT

Request Format:

SEARCH_SENT####

Responses: same as SEARCH_RECEIVED but searching sent items.

Sample Exchanges:

Client -> Server: SEARCH_SENT##john@voidmail.com##Hello

Server -> Client: SEARCH_SENT##FAILURE##Connection timed out

Error Handling

Unknown or unrecognized commands:

Server -> Client: UNKNOWN_COMMAND