# Functional Requirement

1.1 Email Sending Function

Function ID: FR-01

Description: Users can compose and send emails via the system, which automatically saves drafts, validates mandatory fields, performs spam detection, encrypts email content, and queues the message for sending.

Input: Recipient email, subject, body text, attachment files (multi-file upload).

Output: Successful send status prompt, unique email identifier, email send log, archival workflow trigger.

1.2 Email Receiving Function

Function ID: FR-02

Description: The system receives emails from the mail server and performs authentication, anti-spam scoring, virus scanning, content decryption, contact-database correlation, stores the message in a distributed storage cluster, and triggers automatic backup.

Input: RFC5322-compliant email data stream, mail-server response, anti-virus signature database, encrypted email content, email headers.

Output: New-email storage status, arrival notification, email index update, auto-classification rule execution.

1.3 Email Formatting Function

Function ID: FR-03

Description: Users can format the email body, including font styles, paragraph layout, table insertion, automatic vCard generation, responsive-layout validation, and creation of a formatted email version history.

Input: Draft to be formatted, style template (business/casual/technical report), font/paragraph settings, dynamic data-binding fields.

Output: Formatted email metadata, formatting-change version history, layout-check report, email preview cache update.

1.4 Email Search Function

Function ID: FR-04

Description: Users can search emails by keywords, time range, attachment type, and email status; the system supports multi-cluster parallel search, relevance ranking, highlighted snippets, and records search-audit logs.

Input: Search keyword, time range, sender/recipient, attachment type, email status.

Output: Matching email list, search analytics report, cache update, sensitive-data-leak risk alert.

1.5 Folder Management Function

Function ID: FR-05

Description: Users can create, rename, delete, and move emails to folders and set access permissions; the system logs operations, updates directory indexes, and provides versioning with intelligent conflict resolution.

Input: Folder action type (create/rename/delete/move), folder name, selected email list, permission rules.

Output: Folder-structure change record, email-move metadata, permission-config update, operation-audit log, directory-tree refresh.

1.6 Contact Management Function

Function ID: FR-06

Description: Users can create, modify, delete, and query contacts; the system supports auto-completion, relationship-graph building, end-to-end encrypted storage, and logs operation audits.

Input: Contact action type (create/modify/delete/query), contact fields (name, email, phone), organization info, permission settings.

Output: Encrypted contact storage, contact unique identifier, relationship-graph update, auto-completion DB sync, operation-audit log.

1.7 Task Creation Function

Function ID: FR-07

Description: Users can create tasks including name, description, assignee, due date, priority, dependencies, and reminder rules; the system generates a task UID and triggers notifications and calendar updates.

Input: Task name, description, assignee, due date, priority, dependent tasks, reminder rules.

Output: Task unique identifier, task-status change, task-relation graph update, notification-service trigger, operation-audit log.

1.8 Task Modification Function

Function ID: FR-08

Description: Users can modify task info including name, assignee, due date, and reminder rules; the system performs impact analysis, validates modification logic, creates version snapshots, and triggers system sync.

Input: Modified fields (name, assignee, due date, reminder rules), activation mode (immediate/scheduled/conditional).

Output: Task version snapshot, modification-diff report, related-impact analysis, task-status update, operation-audit log.

1.9 Task Deletion Function

Function ID: FR-09

Description: Users can delete tasks; the system performs impact analysis, permission checks, data cleanup, and records deletion-audit trails.

Input: Task ID, deletion mode (immediate deletion/move to archive/back up then delete).

Output: Logical deletion status, deletion-impact report, blockchain audit record, global index update.

1.10 Task Progress Viewing Function

Function ID: FR-10

Description: Users can view task progress via Gantt, burndown, and heat-map charts; the system provides multi-dimensional analytics, intelligent forecasting, anomaly alerts, and logs user access behavior.

Input: Task ID, query criteria (time range, status, assignee).

Output: Task-progress charts, forecast report, anomaly alert, access log, personalized view config.

1.11 Permission Assignment Function

Function ID: FR-11

Description: Admins can assign permissions to users or roles; the system supports multi-dimensional control, conflict detection, least-privilege principle, and records permission-change blockchain audits.

Input: Permission type, target (user/role), resource type, activation conditions (time/location/device).

Output: Permission-config update, permission-impact report, permission snapshot, blockchain proof hash, permission-cache refresh.

1.12 Distribution Group Management Function

Function ID: FR-12

Description: Users can create, modify, and delete distribution groups, set members and permissions; the system detects name conflicts, member validity, permission-drift risks, and updates the global group index.

Input: Group action type (create/modify/delete), group name, member list, permission settings.

Output: Group version snapshot, member-change record, permission-impact report, global group-topology update, audit log.

1.13 Email Archiving Function

Function ID: FR-13

Description: The system auto-archives emails per policy, logs archive status, performs secure erasure, updates indexes, and supports search-and-restore testing for archived emails.

Input: Email ID, archive policy, storage-medium type, archive timestamp.

Output: Archived-email status, archive log, storage-index update, archive-impact report, blockchain proof.

1.14 Archive Policy Management Function

Function ID: FR-14

Description: Admins can create, modify, and delete archive policies, defining email-classification rules, retention periods, and storage media; the system detects policy conflicts, performs compliance checks, and logs audits.

Input: Policy action type (create/modify/delete), policy name, rules, retention period, storage tier.

Output: Policy version snapshot, impact-analysis report, storage-policy update, blockchain audit record, policy-simulation.

1.15 Backup Policy Management Function

Function ID: FR-15

Description: Admins can configure backup policies including frequency, storage location, encryption method, retention cycle; the system detects policy conflicts, performs compliance checks, and logs changes.

Input: Policy action type (create/modify/delete), backup scope, frequency, storage location, encryption algorithm.

Output: Policy version snapshot, impact-analysis report, storage-policy update, blockchain audit record, backup-task scheduling update.

1.16 Data Backup Function

Function ID: FR-16

Description: The system executes backups per policy for emails, tasks, contacts, configs, generating encrypted snapshots, multi-replica sync, and logs the backup.

Input: Backup mode (full/incremental/differential), data scope, storage location, encryption method.

Output: Backup snapshot, backup log, backup-status update, blockchain proof, storage-index update.

1.17 Data Restore Function

Function ID: FR-17

Description: Admins can restore data from a specified point in time for emails, tasks, contacts; the system performs integrity checks, permission validation, and logs the restore.

Input: Restore mode (full/incremental/file-level), restore point, data scope, target storage location.

Output: Restore-data status, restore-impact report, blockchain audit record, global index update, restore-point snapshot.

1.18 Restore Log Recording Function

Function ID: FR-18

Description: The system logs all restore operations in detail, encrypts logs, hashes verification, updates indexes for auditing and anomaly detection.

Input: Restore event (success/fail), restore point, restore scope, data fingerprint.

Output: Restore-log record, log-index update, blockchain proof, anomaly-pattern analysis, operation-replay record.

1.19 Reminder Management Function

Function ID: FR-19

Description: Users can create, modify, and delete reminders with trigger conditions (time, event, location); the system validates logic, channel reachability, and triggers cross-device sync.

Input: Reminder action type (create/modify/delete), trigger condition, notification channel, advance-time setting.

Output: Reminder-config update, cross-device reminder sync, reminder-queue refresh, blockchain audit record, reminder-impact analysis.

1.20 Contact Query Function

Function ID: FR-20

Description: Users can query contacts with multi-dimensional filters, permission filtering, voice input & semantic parsing; the system returns result sets and updates high-frequency query cache.

Input: Query criteria (name, position, organization, contact method), advanced filters (org level, contact validity, task status).

Output: Contact query result, query-analysis report, cache update, permission-filter log, related-info pre-load.

1.21 User Account Management Function

Function ID: FR-21

Description: Admins can create, modify, delete, disable user accounts, set permissions, expiry dates, bindings; the system executes distributed transactions, encrypted storage, and logs changes.

Input: Account action type (create/modify/delete/disable), user-info fields, permission config, expiry, auth method.

Output: User-account status update, permission-config change, encrypted storage record, blockchain proof, audit log.

1.22 Distribution Group Creation Function

Function ID: FR-22

Description: Users can create new distribution groups; the system validates name uniqueness, assigns permission templates, generates group ID, and updates organizational view.

Input: Group name, description, member list, permission settings.

Output: Group unique identifier, permission config, blockchain proof, organization-structure update, group snapshot.

1.23 Archive Policy Application Function

Function ID: FR-23

Description: The system classifies and archives emails per policy, logs execution, generates archive logs, supports mail-stream capture and policy-based archiving.

Input: Email ID, archive policy, archive timestamp, classification rules.

Output: Email archive status, archive log, blockchain proof, index update, archive-impact report.

1.24 Email Expiration Handling Function

Function ID: FR-24

Description: The system detects when emails reach retention limits, performs secure erasure, archiving, storage reclamation, and generates processing logs with blockchain proof.

Input: Email ID, retention policy, storage-medium status, compliance-check result.

Output: Email-processing status, storage-reclaim report, blockchain audit record, index update, operation log.

1.25 Data Backup Log Recording Function

Function ID: FR-25

Description: The system logs every backup operation including type, time, scope, storage location, integrity check, supports log retrieval and auditing.

Input: Backup event (success/fail), backup time, scope, storage location, data fingerprint.

Output: Backup-log record, log-index update, blockchain proof, anomaly-pattern analysis, operation-replay record.

1.26 Email Storage & Index Update Function

Function ID: FR-26

Description: After receiving email, the system stores it in a distributed cluster and updates the full-text index, supporting efficient search and real-time index sync.

Input: Email content, storage node, index config, encryption status.

Output: Email-storage status, full-text index update, index-consistency check, blockchain audit record, storage log.

1.27 Email Auto-Classification Function

Function ID: FR-27

Description: After receiving email, the system auto-classifies it using rules and ML models, updates folder structure, and logs classification decisions.

Input: Email content, classification rules, ML model, folder structure.

Output: Email classification result, folder-structure update, blockchain proof, index sync, classification log.

1.28 Multi-User Email Sync Function

Function ID: FR-28

Description: The system supports simultaneous draft editing by multiple users, resolves conflicts via collaborative algorithms, and ensures email content consistency.

Input: Email ID, user edits, edit timestamp, conflict-resolution mode.

Output: Final email version, version history, conflict-resolution report, blockchain proof, index update.