**Web Bulk Email Application Test Plan**

**1. Document Information**

**Document Version:** 1.0  
**Date:** October 2025  
**Application:** Web Bulk Email Application  
**Test Plan Type:** Full Scope Functional Testing

**2. Test Plan Overview**

This test plan defines the testing approach, scope, and test cases for validating the Web Bulk Email Application. The plan covers functional testing of authentication, user interface, email composition, and bulk sending capabilities.

**3. Test Objectives**

The primary objectives of this test plan are to:

* Verify that only authorized users in the Zscaler security group can access the application
* Validate group selection and contact management functionality
* Ensure the system can handle bulk email operations up to 20,000 recipients
* Confirm email composition features including rich text, graphics, and attachments
* Verify recipient count preview functionality
* Assess system performance, security, and usability
* Identify and document any defects or issues

**4. Test Scope**

**4.1 In-Scope Features**

1. **Authentication & Authorization**
   * Zscaler security group integration
   * User access control
   * Session management
2. **Group Management**
   * Group selection interface
   * Group filtering and search
   * Multiple group selection
3. **Contact Management**
   * Contact visibility in UI
   * Contact list display
   * Contact filtering and pagination
4. **Email Composition**
   * Rich text editor functionality
   * Graphics embedding
   * Attachment handling
   * Email templates (if applicable)
5. **Bulk Email Operations**
   * Sending to large recipient lists (up to 20,000)
   * Recipient count preview
   * Send confirmation workflow
6. **System Performance**
   * Load handling
   * Response times
   * Concurrent user support

**4.2 Out of Scope**

* Email delivery tracking and analytics (unless specified)
* Email scheduling features (unless specified)
* Mobile application testing
* Third-party email client compatibility

**5. Test Approach**

**5.1 Testing Types**

* **Functional Testing:** Verify all features work as specified
* **Integration Testing:** Validate Zscaler integration and email service connectivity
* **Performance Testing:** Assess system behavior under load
* **Security Testing:** Verify access controls and data protection
* **Usability Testing:** Evaluate user interface and experience
* **Compatibility Testing:** Test across different browsers
* **Regression Testing:** Ensure fixes don't break existing functionality

**5.2 Testing Methodology**

* Manual testing for UI/UX and exploratory scenarios
* Automated testing for regression and performance testing
* Progressive testing from individual features to end-to-end scenarios

**6. Test Environment Requirements**

**6.1 Hardware Requirements**

* Test servers with specifications matching production
* Client machines with various configurations
* Network infrastructure supporting high-volume email traffic

**6.2 Software Requirements**

* Supported web browsers (Chrome, Firefox, Safari, Edge - latest 2 versions)
* Test email accounts and domains
* Zscaler test environment access
* Email server test instances
* Test data generation tools

**6.3 Test Data Requirements**

* Test user accounts with Zscaler security group membership
* Test user accounts without Zscaler security group membership
* Test email groups with varying sizes (10, 100, 1000, 10000, 20000 contacts)
* Sample rich text content and graphics
* Various file types and sizes for attachment testing

**7. Detailed Test Cases**

**7.1 Authentication & Authorization Tests**

**TEST-AUTH-001: Authorized User Access**

* **Objective:** Verify authorized users can access the application
* **Preconditions:** User account exists in Zscaler security group
* **Test Steps:**
  1. Navigate to application URL
  2. Enter valid credentials
  3. Complete authentication process
* **Expected Result:** User successfully logs in and accesses main dashboard

**TEST-AUTH-002: Unauthorized User Access**

* **Objective:** Verify unauthorized users cannot access the application
* **Preconditions:** User account not in Zscaler security group
* **Test Steps:**
  1. Navigate to application URL
  2. Enter valid credentials (not in security group)
  3. Attempt authentication
* **Expected Result:** Access denied with appropriate error message

**TEST-AUTH-003: Session Management**

* **Objective:** Verify session timeout and management
* **Test Steps:**
  1. Log in successfully
  2. Leave session idle for timeout period
  3. Attempt to perform action
* **Expected Result:** User redirected to login page

**7.2 Group Selection Tests**

**TEST-GROUP-001: Single Group Selection**

* **Objective:** Verify user can select a single group
* **Test Steps:**
  1. Navigate to group selection interface
  2. Select one group from available list
  3. Confirm selection
* **Expected Result:** Group selected and contacts loaded

**TEST-GROUP-002: Multiple Group Selection**

* **Objective:** Verify user can select multiple groups
* **Test Steps:**
  1. Navigate to group selection interface
  2. Select multiple groups
  3. Confirm selection
* **Expected Result:** All selected groups' contacts combined

**TEST-GROUP-003: Group Search and Filter**

* **Objective:** Verify group search functionality
* **Test Steps:**
  1. Enter search term in group filter
  2. Review filtered results
  3. Select from filtered list
* **Expected Result:** Groups filtered correctly based on search criteria

**7.3 Contact Visibility Tests**

**TEST-CONTACT-001: Contact List Display**

* **Objective:** Verify contacts display in UI
* **Test Steps:**
  1. Select a group
  2. Navigate to contact view
  3. Review contact list
* **Expected Result:** All group contacts displayed with relevant information

**TEST-CONTACT-002: Contact Pagination**

* **Objective:** Verify pagination for large contact lists
* **Test Steps:**
  1. Select group with >100 contacts
  2. Navigate through pages
  3. Verify page controls
* **Expected Result:** Contacts paginated correctly, navigation works

**TEST-CONTACT-003: Contact Information Display**

* **Objective:** Verify contact details are visible
* **Test Steps:**
  1. View contact list
  2. Check displayed fields (name, email, etc.)
  3. Verify data accuracy
* **Expected Result:** Contact information displayed accurately

**7.4 Email Composition Tests**

**TEST-COMPOSE-001: Rich Text Editor**

* **Objective:** Verify rich text editing capabilities
* **Test Steps:**
  1. Open email composer
  2. Test formatting options (bold, italic, underline)
  3. Test font changes and colors
  4. Test paragraph formatting
  5. Add hyperlinks
* **Expected Result:** All rich text features function correctly

**TEST-COMPOSE-002: Graphics Embedding**

* **Objective:** Verify image embedding functionality
* **Test Steps:**
  1. Open email composer
  2. Insert image from file
  3. Insert image from URL
  4. Resize and position images
  5. Test multiple images
* **Expected Result:** Images embedded and displayed correctly

**TEST-COMPOSE-003: Attachment Handling**

* **Objective:** Verify attachment functionality
* **Test Steps:**
  1. Compose email
  2. Attach single file
  3. Attach multiple files
  4. Test various file types (PDF, DOC, XLS, etc.)
  5. Test file size limits
  6. Remove attachments
* **Expected Result:** Attachments handled correctly within size limits

**TEST-COMPOSE-004: Email Preview**

* **Objective:** Verify email preview functionality
* **Test Steps:**
  1. Compose email with rich text and images
  2. Click preview button
  3. Verify rendering
* **Expected Result:** Email preview displays accurately

**7.5 Bulk Sending Tests**

**TEST-BULK-001: Small Volume Send (10 recipients)**

* **Objective:** Verify sending to small group
* **Test Steps:**
  1. Select group with 10 contacts
  2. Compose email
  3. Send email
  4. Verify delivery
* **Expected Result:** Email sent successfully to all recipients

**TEST-BULK-002: Medium Volume Send (1,000 recipients)**

* **Objective:** Verify sending to medium group
* **Test Steps:**
  1. Select group with 1,000 contacts
  2. Compose email
  3. Send email
  4. Monitor sending progress
* **Expected Result:** Email sent successfully, progress indicated

**TEST-BULK-003: Large Volume Send (10,000 recipients)**

* **Objective:** Verify sending to large group
* **Test Steps:**
  1. Select group with 10,000 contacts
  2. Compose email
  3. Send email
  4. Monitor system performance
* **Expected Result:** Email sent successfully, acceptable performance

**TEST-BULK-004: Maximum Volume Send (20,000 recipients)**

* **Objective:** Verify maximum recipient limit
* **Test Steps:**
  1. Select groups totaling 20,000 contacts
  2. Compose email
  3. Send email
  4. Monitor completion
* **Expected Result:** Email sent to all 20,000 recipients

**TEST-BULK-005: Over-Limit Test (>20,000 recipients)**

* **Objective:** Verify system prevents exceeding limit
* **Test Steps:**
  1. Attempt to select groups totaling >20,000 contacts
  2. Try to proceed with send
* **Expected Result:** System prevents selection or displays error

**7.6 Recipient Count Preview Tests**

**TEST-PREVIEW-001: Recipient Count Display**

* **Objective:** Verify recipient count shows before sending
* **Test Steps:**
  1. Select groups
  2. Compose email
  3. Navigate to send confirmation
  4. Check recipient count display
* **Expected Result:** Accurate recipient count displayed

**TEST-PREVIEW-002: Count Update on Group Change**

* **Objective:** Verify count updates dynamically
* **Test Steps:**
  1. Select initial groups
  2. Note recipient count
  3. Add/remove groups
  4. Verify count updates
* **Expected Result:** Count updates accurately with group changes

**TEST-PREVIEW-003: Duplicate Removal Count**

* **Objective:** Verify handling of duplicate contacts
* **Test Steps:**
  1. Select overlapping groups
  2. Check recipient count
  3. Verify duplicates removed
* **Expected Result:** Count reflects unique recipients only

**8. Performance Test Cases**

**PERF-001: Page Load Time**

* **Objective:** Verify acceptable page load times
* **Criteria:** Pages load within 3 seconds
* **Test:** Measure load times for all major pages

**PERF-002: Concurrent Users**

* **Objective:** Test system with multiple simultaneous users
* **Test:** Simulate 50+ concurrent users
* **Expected Result:** System remains responsive

**PERF-003: Email Processing Time**

* **Objective:** Measure email processing speed
* **Test:** Time to queue emails for various volumes
* **Criteria:**
  + 1,000 recipients: <30 seconds
  + 10,000 recipients: <5 minutes
  + 20,000 recipients: <10 minutes

**9. Security Test Cases**

**SEC-001: SQL Injection**

* **Objective:** Verify protection against SQL injection
* **Test:** Attempt SQL injection in all input fields

**SEC-002: Cross-Site Scripting (XSS)**

* **Objective:** Verify XSS protection
* **Test:** Attempt script injection in email composer

**SEC-003: Session Hijacking**

* **Objective:** Verify session security
* **Test:** Attempt to reuse session tokens

**SEC-004: Data Encryption**

* **Objective:** Verify sensitive data encryption
* **Test:** Check network traffic for encrypted transmission

**10. Browser Compatibility Tests**

**COMPAT-001: Chrome Testing**

* Test all features in Chrome (latest 2 versions)

**COMPAT-002: Firefox Testing**

* Test all features in Firefox (latest 2 versions)

**COMPAT-003: Safari Testing**

* Test all features in Safari (latest 2 versions)

**COMPAT-004: Edge Testing**

* Test all features in Edge (latest 2 versions)

**11. Negative Test Cases**

**NEG-001: Invalid File Types**

* Attempt to attach unsupported file types

**NEG-002: Oversized Attachments**

* Attempt to attach files exceeding size limits

**NEG-003: Network Interruption**

* Test behavior during network disconnection

**NEG-004: Invalid Email Addresses**

* Test with malformed email addresses in groups

**NEG-005: Empty Email Content**

* Attempt to send email without subject or body

**12. Entry and Exit Criteria**

**12.1 Entry Criteria**

* Test environment is set up and accessible
* Application build is deployed to test environment
* Test data is prepared and available
* Zscaler test integration is configured
* Test team has necessary access and training

**12.2 Exit Criteria**

* All test cases executed
* Critical and high-priority bugs fixed and retested
* Test completion report generated
* Performance benchmarks met
* Security vulnerabilities addressed
* User acceptance criteria satisfied

**13. Risk Assessment**

**High Risk Areas**

1. **Scalability:** Handling 20,000 recipients
   * Mitigation: Extensive performance testing, gradual load increase
2. **Security:** Zscaler integration and access control
   * Mitigation: Thorough security testing, penetration testing
3. **Email Delivery:** ISP blocking or spam filtering
   * Mitigation: Test with multiple email providers, implement best practices

**Medium Risk Areas**

1. **Browser Compatibility:** Rich text editor differences
   * Mitigation: Test across all supported browsers
2. **File Attachments:** Size and type handling
   * Mitigation: Clear limits and validation testing

**14. Test Deliverables**

1. **Test Plan Document** (this document)
2. **Test Case Repository** with detailed steps
3. **Test Execution Report** with pass/fail status
4. **Defect Reports** with severity and priority
5. **Performance Test Results** with metrics
6. **Security Test Report** with vulnerabilities found
7. **Test Summary Report** with recommendations
8. **Traceability Matrix** linking requirements to test cases

**15. Test Schedule**

**Phase 1: Test Preparation (Week 1)**

* Environment setup
* Test data creation
* Test case refinement

**Phase 2: Functional Testing (Weeks 2-3)**

* Feature testing
* Integration testing
* Defect logging

**Phase 3: Performance Testing (Week 4)**

* Load testing
* Stress testing
* Volume testing

**Phase 4: Security Testing (Week 5)**

* Vulnerability assessment
* Penetration testing

**Phase 5: Regression Testing (Week 6)**

* Bug fix verification
* Full regression suite

**Phase 6: User Acceptance Testing (Week 7)**

* UAT execution
* Final sign-off

**16. Approval**

**Test Plan Approved By:**

| **Role** | **Name** | **Signature** | **Date** |
| --- | --- | --- | --- |
| QA Manager |  |  |  |
| Development Lead |  |  |  |
| Product Owner |  |  |  |
| Project Manager |  |  |  |