# 📋 Standard Operating Procedures (SOP)

## BN Support Desk - Complaint Management System

**🏢 BN Group India IT Department**  
**🔒 Classification: Internal Use Only**

| Document Info | Details |
| --- | --- |
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| 🔐 **Classification** | Internal Use Only |
| 🌐 **System URL** | https://[replit-deployment-url].replit.app |
| 📧 **Support Contact** | support@bngroupindia.com |

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## 🎯 Purpose & Scope

### 📖 Purpose

This Standard Operating Procedure (SOP) document provides comprehensive, step-by-step instructions for operating and maintaining the BN Support Desk complaint management system. It ensures consistent, reliable, and secure operation across both Admin and ASM interfaces with focus on data integrity, system performance, and user experience.

### 🔍 Scope

This SOP covers all aspects of system operation: - ✅ **Daily operational procedures** for both Admin and ASM user interfaces - ✅ **User access management** and profile maintenance with security protocols - ✅ **Complaint data handling** and complete lifecycle management - ✅ **System maintenance tasks** and performance monitoring procedures - ✅ **Security protocols** and comprehensive incident response - ✅ **Emergency procedures** and business continuity planning - ✅ **Data backup and recovery** procedures for PostgreSQL database - ✅ **Export and reporting** functionality with Excel integration - ✅ **Real-time notification** system management and monitoring

### 👥 Detailed Responsibilities Matrix

| Role | Primary Responsibilities | Secondary Responsibilities | Emergency Contact |
| --- | --- | --- | --- |
| **🔧 System Administrator** | Database management, security updates, system deployment | Documentation updates, user training coordination | 24/7 on-call support |
| **👤 Master Admin User** | Daily complaint management, data validation, reporting | Quality assurance checks, escalation handling | Business hours support |
| **👨‍💼 ASM Users** | Regional complaint submission, field data collection | Customer interaction, status updates | Regional contact points |
| **💻 IT Support** | Technical troubleshooting, performance monitoring | System optimization, user support | Help desk availability |

### 🏢 Business Context & Integration

| Aspect | Details | Critical Success Factors |
| --- | --- | --- |
| **🌍 Geographic Coverage** | Mathura (UP), Agra (UP), Bhimasar (Gujarat) | Accurate regional data mapping |
| **📊 Data Volume** | 146+ complaints (114 historical + current) | Consistent data quality standards |
| **👥 User Base** | 1 Master Admin + Multiple regional ASM users | Role-based access enforcement |
| **🔄 Update Frequency** | Real-time WebSocket + 30-second refresh cycles | Continuous system availability |
| **📤 Reporting** | 30-column Excel export with business templates | Complete metadata preservation |

## 🌅 Daily Operations

### 🌅 Morning Startup Procedures (9:00 AM IST)

#### 📊 Admin Dashboard Startup Checklist

✅ 1. SYSTEM ACCESS VERIFICATION  
 🌐 Access: https://[replit-deployment-url].replit.app  
 🔐 Login: Username: temp | Password: temp  
 ⏱️ Response Time: Dashboard load <3 seconds  
 🔗 Database: PostgreSQL connectivity confirmed  
 📊 Statistics: Complaint counts display correctly  
 🗺️ Map: Regional markers render properly  
  
✅ 2. DATA INTEGRITY VALIDATION  
 📈 Overnight Data: Review new complaint submissions  
 🔍 Data Accuracy: Verify dashboard widget calculations  
 🌍 Map Visualization: Confirm all regional markers active  
 📊 Chart Data: Validate pie charts and analytics  
 📅 Year Toggle: Test 2024/2025 data filtering  
 📊 Status Distribution: Verify accurate counts  
  
✅ 3. PERFORMANCE & FUNCTIONALITY TESTING  
 ⚡ Load Times: Dashboard <3s, Analytics <5s, All Complaints <4s  
 📤 Export Test: Generate sample Excel export (30-column format)  
 📊 Chart Interaction: Test hover effects and click interactions  
 📱 Mobile Testing: Verify responsive design on tablet/mobile  
 🔔 Notifications: Check WebSocket connectivity and alerts  
 🎨 UI Elements: Confirm gradients, animations, transitions working  
  
✅ 4. SECURITY & ACCESS VALIDATION  
 🔐 Password Security: Verify login encryption working  
 👤 Profile Access: Test settings and profile management  
 🔒 Session Management: Confirm proper logout functionality  
 🛡️ Error Handling: Check for exposed sensitive information

#### 👨‍💼 ASM Dashboard Startup Checklist

✅ 1. ASM ACCESS & AUTHENTICATION  
 🔐 Login Options: asm/123 or demo/demo credentials  
 📋 Dashboard: ASM interface loads without errors  
 🔔 Notifications: Bell icon displays with correct count  
 📊 Regional Data: Assigned area statistics display  
 📱 Mobile View: Interface responsive on mobile devices  
  
✅ 2. COMPLAINT SUBMISSION FUNCTIONALITY  
 📝 Form Access: "New Complaint" form opens correctly  
 📋 Dropdowns: All selection options populate properly  
 - Complaint Type: All options available  
 - Place of Supply: Mathura/Agra/Bhimasar active  
 - Area of Concern: Dynamic subcategory loading  
 📁 File Upload: Drag-and-drop functionality working  
 📅 Date Picker: Calendar opens, future dates blocked  
 💾 Form Submission: Complete workflow test successful  
  
✅ 3. REAL-TIME SYSTEM VERIFICATION  
 🔔 Notification System: Dropdown panel functionality  
 🎵 Sound Alerts: Audio notifications operational  
 📱 Mobile Interface: Touch interactions responsive  
 🔄 Status Updates: Real-time complaint status changes  
 📊 Progress Bars: Complaint lifecycle visualization working  
 🌐 WebSocket: Real-time connection established  
  
✅ 4. REGIONAL DATA ACCURACY  
 📊 Statistics Cards: Regional complaint counts accurate  
 📈 Trend Data: Historical and current data display  
 🗺️ Geographic Data: Location markers positioned correctly  
 📋 Complaint Tracking: Status progression visibility

### 🌆 End of Day Procedures (6:00 PM IST)

#### 📊 Comprehensive Data Validation & Backup

✅ 1. DATABASE BACKUP VERIFICATION  
 💾 PostgreSQL Auto-Backup: Verify Neon Database backup completed  
 📊 Data Integrity: Run integrity check on complaint tables  
 🔄 Synchronization: Confirm real-time data sync operational  
 📈 Daily Statistics: Review complaint submission summary  
 📊 Data Metrics: Validate total counts (2024: 114, 2025: current)  
 📄 Export Test: Generate end-of-day export for validation  
  
✅ 2. COMPREHENSIVE SECURITY REVIEW  
 📋 Access Logs: Review login attempts and user sessions  
 🔍 Database Activity: Monitor for unusual query patterns  
 ⚠️ Error Monitoring: Check application logs for anomalies  
 🔐 Security Alerts: Verify no browser console warnings  
 🛡️ Authentication: Confirm secure session management  
 🔒 Password Security: Review failed login attempts  
  
✅ 3. PERFORMANCE METRICS COLLECTION  
 ⚡ Response Times: Document average page load speeds  
 📊 Chart Rendering: Monitor visualization performance  
 🔄 WebSocket Health: Verify real-time connection stability  
 📱 Mobile Performance: Check responsive design metrics  
 🗺️ Map Loading: Verify Leaflet map rendering times  
  
✅ 4. SYSTEM MAINTENANCE TASKS  
 🧹 Cache Cleanup: Clear temporary files and session data  
 📊 Analytics Review: Check dashboard KPI accuracy  
 🔄 Update Status: Verify all complaints have proper status  
 📋 Data Quality: Review for missing or inconsistent data  
 💾 Configuration Backup: Ensure system settings preserved

#### 📈 Weekly Maintenance Procedures (Every Friday 5:00 PM)

✅ 1. COMPREHENSIVE SYSTEM HEALTH CHECK  
 🔍 Database Performance: Analyze query execution times  
 📊 Storage Usage: Monitor PostgreSQL database size growth  
 🔄 Connection Pool: Review database connection efficiency  
 📈 Growth Trends: Analyze complaint volume patterns  
 🗺️ Geographic Data: Verify location coordinate accuracy  
  
✅ 2. USER ACCESS & SECURITY AUDIT  
 👤 User Accounts: Review admin and ASM user access  
 🔐 Password Security: Check for expired or weak passwords  
 📋 Access Patterns: Analyze user login and activity logs  
 🛡️ Security Updates: Check for system vulnerabilities  
 🔒 Session Management: Review session timeout settings  
  
✅ 3. DATA QUALITY ASSURANCE  
 📊 Data Validation: Run comprehensive data integrity checks  
 📄 Export Testing: Validate Excel export functionality  
 🔍 Missing Data: Identify and address data gaps  
 📈 Reporting Accuracy: Verify analytics calculations  
 🗺️ Map Data: Confirm regional complaint distribution  
  
✅ 4. PERFORMANCE OPTIMIZATION  
 ⚡ Server Performance: Monitor CPU and memory usage  
 📊 Query Optimization: Review slow database queries  
 🔄 Cache Strategy: Optimize data caching mechanisms  
 📱 Mobile Performance: Test mobile interface responsiveness  
 🌐 Network Performance: Analyze API response times

#### 📅 Monthly System Review (Last Friday of Month)

✅ 1. COMPREHENSIVE SYSTEM AUDIT  
 📊 Usage Statistics: Compile monthly user activity report  
 📈 Performance Trends: Analyze system performance over time  
 🔍 Security Assessment: Conduct thorough security review  
 💾 Backup Strategy: Review and test backup procedures  
 📋 Documentation: Update SOPs based on lessons learned  
  
✅ 2. BUSINESS CONTINUITY PLANNING  
 🔄 Disaster Recovery: Test backup restoration procedures  
 📊 Data Migration: Verify data export/import capabilities  
 🛡️ Security Protocols: Review incident response procedures  
 👥 User Training: Update training materials and procedures  
 📞 Contact Lists: Verify emergency contact information  
  
✅ 3. STRATEGIC PLANNING & OPTIMIZATION  
 📈 Growth Planning: Analyze complaint volume trends  
 🔧 System Upgrades: Plan for performance improvements  
 👤 User Feedback: Collect and analyze user experience data  
 📊 ROI Analysis: Evaluate system effectiveness and value  
 🎯 Goal Setting: Set objectives for following month

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## 👥 User Management  
  
### 🔑 Admin Account Management  
  
#### 👤 Profile Update Procedure  
\*\*🖼️ Step-by-Step Visual Guide:\*\*

[📸 SCREENSHOT REFERENCE: Profile Update Flow]

Step 1: 🏠 Navigate to Settings ├── Click “Settings” in admin sidebar ├── Select “Profile” tab from three-tab layout └── View current profile information

Step 2: ✏️ Update Profile Fields ├── 👤 First Name: Enter personal first name ├── 👤 Last Name: Enter personal last name ├── 📧 Email: Enter contact email (@bngroupindia.com format) ├── 📞 Phone: Enter contact phone number └── 📊 View completion progress indicator

Step 3: 💾 Save Changes ├── Click “Update Profile” button ├── Verify success message appears ├── Check sidebar updates immediately └── Confirm changes persist after page refresh

#### 🔐 Password Change Procedure

⚠️ IMPORTANT: Follow security protocols when changing passwords

Step 1: 🔒 Access Security Settings ├── Navigate to Settings > Security tab ├── Locate “Change Password” section └── Review current password requirements

Step 2: 🔑 Enter Password Information ├── 🔒 Current Password: “temp” ├── 🆕 New Password: Minimum 8 characters ├── ✅ Confirm Password: Re-enter new password └── 💪 Check password strength indicator

Step 3: 🚀 Apply Changes ├── Click “Change Password” button ├── Wait for success confirmation ├── Test login with new credentials └── 📝 Update this SOP with new credentials (if applicable)

### 👨‍💼 ASM Account Verification  
  
#### ASM Login Validation Process

✅ CREDENTIAL VERIFICATION Username Options: “asm” or “demo” Password Options: “123” or “demo” Access Level: ASM Dashboard only

✅ FUNCTIONALITY TESTING 📝 New complaint form access 🔔 Notification system functionality 📊 Regional analytics visibility 🚫 Admin settings restriction (should be blocked)

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## 📝 Complaint Processing  
  
### 📋 Admin Complaint Management  
  
#### 📊 Complaint Status Workflow

📈 COMPLAINT LIFECYCLE MANAGEMENT

Status Flow: New → Processing → Resolved → Closed

✅ 1. NEW COMPLAINT PROCESSING 📝 Review complaint details and categorization 🏷️ Assign priority level (High/Medium/Low) 👤 Assign responsible team member if applicable 📅 Set expected resolution timeframe 📊 Update status to “Processing” when work begins

✅ 2. PROCESSING STAGE MANAGEMENT 🔄 Monitor progress and provide regular updates 📞 Maintain customer communication as needed 📝 Document all actions taken for resolution 🔍 Escalate to senior management if complex ⏰ Track against resolution time targets

✅ 3. RESOLUTION CONFIRMATION ✅ Verify complaint has been addressed satisfactorily 📞 Confirm resolution with customer if applicable 📝 Document final resolution details 📊 Update status to “Resolved” 📈 Record resolution time for analytics

✅ 4. CLOSURE PROCEDURES 📋 Complete final documentation review 📊 Update status to “Closed” 📈 Add to resolution statistics 📝 Archive complaint records appropriately 🔄 Use learnings for process improvement

#### 📊 Priority Management System

🚨 HIGH PRIORITY (Red Badge) ⏰ Response Time: Within 2 hours 🎯 Resolution Target: Same day 👤 Escalation: Immediate supervisor notification 📞 Customer Contact: Direct phone communication

🟡 MEDIUM PRIORITY (Yellow Badge) ⏰ Response Time: Within 8 hours 🎯 Resolution Target: Within 2 business days 👤 Escalation: Department head if delayed 📧 Customer Contact: Email updates provided

🟢 LOW PRIORITY (Green Badge) ⏰ Response Time: Within 24 hours 🎯 Resolution Target: Within 5 business days 👤 Escalation: Weekly review cycle 📋 Customer Contact: Standard communication

### 👨‍💼 ASM Complaint Submission Process  
  
#### 📝 New Complaint Form Completion

✅ FORM SECTION COMPLETION GUIDE

Section 1: Customer Information (Optional Fields) ├── 👤 Customer Name: Full name or company contact ├── 📧 Email Address: Valid email format required ├── 📞 Contact Number: Include country/area code └── 🏢 Company/Depot Name: Business identification

Section 2: Complaint Classification ├── 📋 Complaint Type: Select from dropdown options ├── 📍 Place of Supply: Choose from Mathura/Agra/Bhimasar ├── 📅 Date: Use calendar picker (past dates only) ├── 📝 Area of Concern: Primary issue category └── 🏷️ Sub Category: Auto-populated based on area

Section 3: Product & Service Details ├── 📦 Product Name: Specific product or select “Others” ├── 📄 Invoice Number: Reference number if available ├── 📅 Invoice Date: Related invoice date └── 📋 LR Number: Logistics reference if applicable

Section 4: Transportation Information ├── 🚛 Transporter Name: Carrier company name ├── 📄 Transporter Number: Carrier reference ID └── 👤 Salesperson Name: Assigned sales representative

Section 5: Detailed Description ├── 📝 Voice of Customer: Detailed complaint description ├── 📎 File Attachments: Supporting documents/images └── 🎵 Audio Recording: Voice notes if applicable

#### 🎯 Form Validation & Submission

✅ PRE-SUBMISSION CHECKLIST 📋 All required fields completed accurately 📝 Description provides sufficient detail 📎 Relevant attachments included 🔍 Information accuracy verified 📊 Form validation messages addressed

✅ SUBMISSION PROCESS 💾 Click “Submit Complaint” button ⏳ Wait for processing confirmation (2-3 seconds) ✅ Verify success message display 📋 Note complaint ID for future reference 🔔 Confirm notification sent to admin team

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## 💾 Data Management  
  
### 📊 Database Maintenance Procedures  
  
#### 🔄 Daily Data Backup Verification

✅ POSTGRESQL BACKUP VALIDATION 💾 Neon Database: Verify automatic backup completion 📊 Data Integrity: Run table count validation queries 🔍 Backup Status: Check backup logs for errors 📈 Growth Metrics: Monitor database size trends 🔄 Recovery Test: Quarterly restore procedure test

SQL Validation Queries: SELECT COUNT(*) FROM complaints; – Verify complaint count SELECT COUNT(*) FROM users; – Verify user count  
SELECT MAX(created\_at) FROM complaints; – Latest entry SELECT COUNT(\*) FROM notifications; – Notification count

#### 📈 Data Quality Assurance

✅ WEEKLY DATA QUALITY CHECKS 📊 Duplicate Detection: Identify duplicate complaints 📝 Missing Data: Find incomplete complaint records 🔍 Data Consistency: Verify status field accuracy 📅 Date Validation: Check for future-dated complaints 📍 Geographic Data: Validate location coordinates

Quality Control Queries: – Find complaints with missing critical data SELECT \* FROM complaints WHERE complaint\_type IS NULL OR place\_of\_supply IS NULL;

– Identify potential duplicates SELECT COUNT(*), customer\_name, complaint\_date FROM complaints GROUP BY customer\_name, complaint\_date HAVING COUNT(*) > 1;

### 📤 Export Data Management  
  
#### 📊 Excel Export Procedures

✅ EXPORT CONFIGURATION VERIFICATION 📋 Template Structure: 30-column business format 📅 Date Range: Year-specific filtering (2024/2025) 📊 Data Completeness: All metadata fields included 📍 Geographic Data: Coordinates and location names 💾 File Format: Excel .xlsx compatibility

✅ EXPORT QUALITY CONTROL 📊 Record Count: Verify exported vs database count 📝 Field Mapping: Confirm all columns populated 📍 Location Data: Validate coordinate accuracy 📅 Date Formatting: Ensure consistent date display 🔍 Missing Data: Confirm “-” placeholder usage

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## 📊 System Monitoring  
  
### ⚡ Performance Monitoring Procedures  
  
#### 📈 Daily Performance Metrics

✅ RESPONSE TIME MONITORING 🏠 Dashboard Load: Target <3 seconds 📊 Analytics Page: Target <5 seconds 📋 All Complaints: Target <4 seconds ⚙️ Settings Page: Target <2 seconds 📝 Form Loading: Target <2 seconds

✅ DATABASE PERFORMANCE 🔍 Query Response: Monitor slow queries (>1 second) 💾 Connection Pool: Verify efficient connection usage 📊 Index Performance: Check query execution plans 🔄 Lock Monitoring: Identify blocking queries 📈 Growth Trends: Track database size growth

Performance Monitoring Queries: – Check slow queries SELECT query, mean\_time, calls FROM pg\_stat\_statements ORDER BY mean\_time DESC LIMIT 10;

– Monitor connection usage SELECT count(\*), state FROM pg\_stat\_activity GROUP BY state;

#### 🌐 Application Health Monitoring

✅ SYSTEM HEALTH INDICATORS 🔄 WebSocket Connectivity: Real-time update functionality 📊 Chart Rendering: Visualization performance 🗺️ Map Loading: Leaflet map initialization time 📱 Mobile Responsiveness: Touch interface performance 🔔 Notification System: Alert delivery timing

✅ ERROR MONITORING & LOGGING ⚠️ JavaScript Errors: Browser console monitoring 🔍 Server Errors: Application log analysis 💾 Database Errors: Connection and query failures 📱 Mobile Issues: Touch and responsive design problems 🔒 Security Alerts: Authentication and access violations

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## 🔄 Backup & Recovery  
  
### 💾 Comprehensive Backup Strategy  
  
#### 🔄 Automated Backup Procedures

✅ NEON DATABASE AUTOMATED BACKUPS 📅 Schedule: Continuous point-in-time recovery 💾 Retention: 30-day backup history 🔄 Verification: Daily backup completion check 📊 Monitoring: Backup size and duration tracking 🚨 Alerts: Backup failure notification system

✅ CONFIGURATION BACKUP ⚙️ Application Settings: Environment variables backup 👤 User Profiles: Profile data export procedures 📊 System Configuration: Database schema backup 🔐 Security Settings: Access control configuration 📝 Documentation: SOP and procedure backup

#### 🔄 Disaster Recovery Procedures

✅ EMERGENCY RECOVERY PROTOCOLS 🚨 System Failure: Complete system restoration steps 💾 Data Corruption: Point-in-time recovery procedures 🔒 Security Breach: Incident response and system lockdown 📊 Data Loss: Backup restoration and validation 🌐 Service Outage: Alternative access procedures

Recovery Time Objectives (RTO): 🚨 Critical System Failure: 4 hours maximum 💾 Data Recovery: 2 hours maximum 🔒 Security Incident: 1 hour maximum 📊 Partial Data Loss: 1 hour maximum

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## 🔒 Security Procedures  
  
### 🛡️ Comprehensive Security Protocols  
  
#### 🔐 Access Control Management

✅ USER ACCESS VERIFICATION 👤 Admin Access: Verify temp/temp credentials secure 👨‍💼 ASM Access: Validate asm/123 and demo/demo accounts 🔒 Session Security: Monitor session timeout settings 🛡️ Password Policy: Enforce strong password requirements 📋 Access Logging: Track login attempts and patterns

✅ SECURITY MONITORING 🔍 Login Monitoring: Track successful/failed attempts 🚨 Suspicious Activity: Identify unusual access patterns 🔒 Session Management: Monitor active user sessions 📊 Permission Verification: Validate role-based access 🛡️ Vulnerability Scanning: Regular security assessment

#### 🚨 Incident Response Procedures

✅ SECURITY INCIDENT CLASSIFICATION 🔴 Critical: Unauthorized admin access, data breach 🟡 High: Multiple failed login attempts, system anomalies 🟢 Medium: Single failed login, minor access issues 🔵 Low: Normal security events, routine monitoring

✅ INCIDENT RESPONSE WORKFLOW Step 1: 🚨 Immediate Assessment and Containment Step 2: 📋 Incident Documentation and Classification Step 3: 🔍 Investigation and Evidence Collection Step 4: 🛡️ System Hardening and Vulnerability Patching Step 5: 📊 Post-Incident Review and Process Improvement

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## ✅ Quality Assurance  
  
### 📊 Comprehensive Quality Control  
  
#### 🔍 Daily Quality Checks

✅ DATA QUALITY VALIDATION 📊 Complaint Data: Verify accuracy and completeness 📍 Geographic Data: Confirm location coordinate accuracy 📅 Date Consistency: Validate date formats and ranges 🏷️ Status Accuracy: Verify complaint status progression 📝 Description Quality: Check for meaningful content

✅ SYSTEM FUNCTIONALITY TESTING 📋 Form Submission: Test complaint creation workflow 📊 Chart Rendering: Verify visualization accuracy 🗺️ Map Functionality: Confirm interactive map features 🔔 Notifications: Test real-time alert system 📤 Export Function: Validate Excel export quality

#### 📈 Performance Quality Standards

✅ PERFORMANCE BENCHMARKS ⚡ Page Load Times: <3 seconds for critical pages 📊 Chart Rendering: <2 seconds for data visualization 🗺️ Map Loading: <4 seconds for full map initialization 💾 Database Queries: <1 second for standard operations 📤 Export Generation: <10 seconds for full data export

✅ USER EXPERIENCE STANDARDS 📱 Mobile Responsiveness: All features functional on mobile 🎨 Visual Consistency: Professional appearance maintained 🔄 Animation Performance: Smooth transitions <300ms 🔔 Notification Timing: Real-time updates within 5 seconds 📝 Form Usability: Intuitive and error-free completion

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<div align="center">  
  
## 📞 Emergency Contact Information  
  
| Role | Contact Person | Phone | Email | Availability |  
|------|----------------|-------|-------|--------------|  
| \*\*🔧 System Administrator\*\* | IT Department Head | +91-XXXX-XXXXXX | admin@bngroupindia.com | 24/7 |  
| \*\*👤 Master Admin\*\* | Operations Manager | +91-XXXX-XXXXXX | operations@bngroupindia.com | Business Hours |  
| \*\*💻 Technical Support\*\* | IT Help Desk | +91-XXXX-XXXXXX | support@bngroupindia.com | 8 AM - 8 PM |  
| \*\*🚨 Emergency Escalation\*\* | BN Group Management | +91-XXXX-XXXXXX | emergency@bngroupindia.com | 24/7 |  
  
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\*\*📋 Document Control\*\*  
  
| Aspect | Details |  
|--------|---------|  
| \*\*📄 Document Owner\*\* | BN Group India IT Department |  
| \*\*📅 Review Frequency\*\* | Monthly (Last Friday) |  
| \*\*📊 Version Control\*\* | Maintained in Git repository |  
| \*\*🔒 Access Classification\*\* | Internal Use Only |  
| \*\*📝 Change Approval\*\* | IT Department Head Required |  
  
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\*📋 This Standard Operating Procedure is maintained by the BN Group IT Department and updated regularly to reflect system enhancements, security updates, and operational improvements based on user feedback and industry best practices.\*  
  
\*🔒 For internal use only. Distribution outside BN Group India requires written authorization from the IT Department Head.\*  
  
\*\*🏢 BN Group India - Building Nation Through Excellence\*\*  
  
</div>  
  
New Complaint Processing:  
┌─────────────────────────────────────────┐  
│ 1. 📥 COMPLAINT RECEIVED │  
│ ├── Automatic ID assignment │  
│ ├── Default priority: Medium │  
│ ├── Initial status: New │  
│ └── Regional classification │  
└─────────────────────────────────────────┘  
 ↓  
┌─────────────────────────────────────────┐  
│ 2. 📋 INITIAL REVIEW │  
│ ├── Data completeness check │  
│ ├── Priority assessment │  
│ ├── Regional assignment validation │  
│ └── Status update to "Open" │  
└─────────────────────────────────────────┘  
 ↓  
┌─────────────────────────────────────────┐  
│ 3. 🔄 PROCESSING PHASE │  
│ ├── Status: "In Progress" │  
│ ├── Investigation and resolution │  
│ ├── Customer communication │  
│ └── Progress tracking │  
└─────────────────────────────────────────┘  
 ↓  
┌─────────────────────────────────────────┐  
│ 4. ✅ RESOLUTION & CLOSURE │  
│ ├── Status: "Resolved" → "Closed" │  
│ ├── Resolution documentation │  
│ ├── Customer satisfaction check │  
│ └── Final reporting │  
└─────────────────────────────────────────┘

#### 🏷️ Priority Assignment Guidelines

| Priority Level | Criteria | Response Time | Visual Indicator |
| --- | --- | --- | --- |
| 🔴 **Critical** | Safety issues, system failures, major product recalls | ⏰ 4 hours | Red badge, urgent notification |
| 🟠 **High** | Product defects affecting multiple customers | ⏰ 24 hours | Orange badge, priority flag |
| 🟡 **Medium** | Standard product/service issues (DEFAULT) | ⏰ 72 hours | Yellow badge, standard workflow |
| 🟢 **Low** | Minor issues, suggestions, informational queries | ⏰ 1 week | Green badge, routine handling |

### 👨‍💼 ASM Complaint Submission

#### 📝 New Complaint Creation Process

**🖼️ Visual Workflow Reference:**

[📸 SCREENSHOT REFERENCE: ASM Complaint Form Workflow]  
  
Phase 1: 📋 FORM ACCESS  
├── Login to ASM dashboard  
├── Click "New Complaint" in sidebar  
├── Modern progressive form loads  
└── Form validation indicators appear  
  
Phase 2: 📝 DATA ENTRY  
├── Customer Information Section:  
│ ├── 🏢 Depo/Party Name (Optional)  
│ ├── 📧 Email Address (Optional)  
│ └── 📞 Contact Number (Optional)  
├── Product Information Section:  
│ ├── 🏭 Product Name (Dropdown + Others option)  
│ ├── 📍 Place of Supply (Mathura/Agra/Bhimasar)  
│ └── 📦 Area of Concern (Predefined categories)  
└── Complaint Details Section:  
 ├── 📝 Complaint Type (Predefined options)  
 ├── 🗣️ Voice of Customer (Detailed description)  
 ├── 📅 Complaint Date (Auto-populated)  
 └── 📁 File Attachments (Optional)  
  
Phase 3: ✅ VALIDATION & SUBMISSION  
├── Form validation check  
├── Required field verification  
├── Data format validation  
├── Submit button activation  
└── Confirmation message display

## 💾 Data Management

### 📊 Daily Data Operations

#### 📤 Export Procedures

**📋 All Complaints Export Process:**

🔹 PREPARATION PHASE  
├── Navigate to "All Complaints" page  
├── Apply filters if needed:  
│ ├── 📅 Date Range Selection  
│ ├── 🏷️ Status Filter (Open/Resolved/Closed)  
│ ├── ⚡ Priority Filter (Critical/High/Medium/Low)  
│ └── 📍 Regional Filter (Mathura/Agra/Bhimasar)  
└── Verify data preview is accurate  
  
🔹 EXPORT EXECUTION  
├── Click "Export to Excel" button  
├── Wait for processing indicator  
├── Verify download initiation  
├── Check download folder for file  
└── Open file to confirm data accuracy  
  
🔹 FILE VALIDATION  
├── ✅ 30-column structure verification  
├── ✅ Data completeness check  
├── ✅ Date format consistency  
├── ✅ Regional classification accuracy  
└── ✅ Store file with timestamp naming

#### 📧 Analytics Report Generation

🔹 REPORT PREPARATION  
├── Navigate to "Analytics" page  
├── Ensure all charts loaded properly  
├── Verify data currency (last refresh time)  
└── Check map markers display correctly  
  
🔹 EMAIL REPORT DELIVERY  
├── Click "Email Visual Report" function  
├── Verify recipient email configuration  
├── Monitor sending progress indicator  
├── Check success confirmation message  
└── Verify recipient inbox for delivery  
  
🔹 AUTOMATED DAILY REPORTS  
├── ⏰ Scheduled: Daily at 9:00 AM  
├── 📧 Default Recipient: yashvardhanarorayt@gmail.com  
├── 📊 Content: Comprehensive analytics summary  
├── 📈 Format: HTML email with embedded charts  
└── 📋 Delivery Log: Automatic logging of send status

### 🔍 Data Validation Protocols

#### ✅ Daily Data Quality Checks

📊 COMPLAINT DATA VALIDATION  
├── ✅ Unique ID verification (no duplicates)  
├── ✅ Date field consistency (no future dates)  
├── ✅ Regional assignment accuracy  
├── ✅ Priority level appropriateness  
├── ✅ Status workflow compliance  
└── ✅ Customer information completeness  
  
🌍 REGIONAL DATA VALIDATION  
├── ✅ Mathura complaints: Uttar Pradesh classification  
├── ✅ Agra complaints: Uttar Pradesh classification  
├── ✅ Bhimasar complaints: Gujarat (Kutch) classification  
├── ✅ Coordinate accuracy on map display  
└── ✅ Regional statistics correlation  
  
📧 CONTACT DATA VALIDATION  
├── ✅ Email format compliance (@bngroupindia.com where applicable)  
├── ✅ Phone number format (+91 for Indian numbers)  
├── ✅ Contact information completeness  
└── ✅ Data privacy compliance

## 📊 System Monitoring

### 🔄 Real-Time Performance Monitoring

#### ⚡ Application Health Metrics

🖥️ FRONTEND PERFORMANCE  
├── 📊 Dashboard Load Time: Target <3 seconds  
├── 📈 Analytics Page Load: Target <5 seconds  
├── 📋 Complaint List Load: Target <4 seconds  
├── ⚙️ Settings Page Load: Target <2 seconds  
└── 🗺️ Map Rendering Time: Target <3 seconds  
  
🔧 BACKEND PERFORMANCE  
├── 🔗 Database Connection Time: Target <200ms  
├── 📊 API Response Time: Target <500ms  
├── 📤 Export Generation Time: Target <30 seconds  
├── 📧 Email Send Time: Target <10 seconds  
└── 🔄 Auto-refresh Cycle: Every 30 seconds  
  
💾 DATABASE PERFORMANCE  
├── 📊 Query Execution Time: Target <200ms  
├── 🔗 Connection Pool Status: Monitor active connections  
├── 💽 Storage Usage: Monitor PostgreSQL space  
└── 🔄 Backup Process: Verify completion status

#### 🚨 Error Monitoring & Alerting

🔴 CRITICAL ERRORS (Immediate Action Required)  
├── 💥 Database connection failures  
├── 🔐 Authentication system failures  
├── 📊 Complete dashboard failure  
├── 💾 Data corruption incidents  
└── 🔒 Security breach indicators  
  
🟠 HIGH PRIORITY ERRORS (Action Within 1 Hour)  
├── ⚡ Slow page load times (>5 seconds)  
├── 📤 Export functionality failures  
├── 📧 Email delivery failures  
├── 🗺️ Map rendering issues  
└── 📱 Mobile compatibility problems  
  
🟡 MEDIUM PRIORITY ERRORS (Action Within 4 Hours)  
├── 🎨 UI rendering inconsistencies  
├── 📊 Chart display issues  
├── 🔍 Search functionality problems  
├── 📝 Form validation errors  
└── 📱 Notification system glitches

## 🔄 Backup & Recovery

### 💾 Database Backup Procedures

#### 🔄 Automated Backup System (Neon Database)

🤖 AUTOMATIC BACKUP CONFIGURATION  
├── 📅 Frequency: Continuous point-in-time recovery  
├── ⏰ Retention: 7 days (free tier)  
├── 🌍 Location: Neon cloud infrastructure (Singapore)  
├── 🔒 Security: Encrypted backup storage  
└── ✅ Verification: Daily backup status monitoring  
  
📊 BACKUP VERIFICATION PROCESS  
├── 🔍 Daily status check in Neon dashboard  
├── 📊 Backup size and timestamp verification  
├── 🔗 Connection integrity testing  
├── 📈 Performance impact assessment  
└── 📋 Documentation of backup status

#### 📋 Manual Backup Procedures

⏰ WEEKLY MANUAL BACKUP (Every Sunday 11:59 PM)  
  
🔹 PREPARATION PHASE  
├── Access Neon database management console  
├── Verify current database size and activity  
├── Ensure sufficient storage space  
└── Prepare backup documentation template  
  
🔹 BACKUP EXECUTION  
├── Initiate full database export  
├── Monitor backup progress (estimated time: 10-15 minutes)  
├── Download backup file upon completion  
├── Verify file integrity and size  
└── Store in secure backup location  
  
🔹 VERIFICATION & DOCUMENTATION  
├── Test backup file accessibility  
├── Verify data completeness  
├── Document backup completion time  
├── Record file size and location  
└── Update backup log with success status

### 🔄 Recovery Procedures

#### 🚨 Emergency Recovery Process

⚠️ MINOR DATA LOSS RECOVERY  
├── 🔍 Assess scope of data loss  
├── 📊 Identify last known good state  
├── 🔄 Use point-in-time recovery (if available)  
├── ✅ Verify data restoration completeness  
└── 🧪 Test application functionality post-recovery  
  
🚨 MAJOR DATA LOSS RECOVERY  
├── 🚨 Immediate escalation to IT team  
├── 📞 Contact Neon support for assistance  
├── 💾 Restore from most recent complete backup  
├── 📝 Rebuild lost data from manual records  
├── 🧪 Perform comprehensive system testing  
└── 📋 Document incident and lessons learned

## 🔒 Security Procedures

### 🔐 Access Control & Authentication

#### 🔑 Credential Management

🔒 ADMIN CREDENTIALS SECURITY  
├── 👤 Username: temp (lowercase only)  
├── 🔑 Password: temp (case-sensitive)  
├── 🔄 Regular password review (monthly)  
├── 🚫 No sharing of credentials  
└── 📋 Secure storage of backup credentials  
  
👨‍💼 ASM CREDENTIALS SECURITY  
├── 👤 Username Options: asm, demo  
├── 🔑 Password Options: 123, demo  
├── 🔒 Role-based access restrictions  
├── 📊 Activity monitoring and logging  
└── 🚫 Admin functionality restrictions

#### 🛡️ Security Monitoring Procedures

📋 DAILY SECURITY CHECKLIST  
├── ✅ Review login attempt logs  
├── ✅ Check for failed authentication attempts  
├── ✅ Verify all successful logins are authorized  
├── ✅ Monitor unusual database activity  
├── ✅ Check for security warnings in browser  
├── ✅ Verify HTTPS connection integrity  
└── ✅ Document any suspicious activities  
  
🔍 WEEKLY SECURITY AUDIT  
├── 📊 Comprehensive access log review  
├── 🔒 Password policy compliance check  
├── 🌐 Network security validation  
├── 💾 Database security assessment  
├── 📧 Email security configuration review  
└── 📋 Security incident documentation

## 🚨 Incident Response

### 📊 Incident Classification & Response

#### 🚨 Emergency Response Matrix

🔴 PRIORITY 1 - CRITICAL (Response: 15 minutes)  
├── 💥 Complete system outage  
├── 🔒 Security breach confirmed  
├── 💾 Data corruption/loss  
├── 🔐 Authentication system failure  
└── 🚨 Safety-related complaints not processing  
  
🟠 PRIORITY 2 - HIGH (Response: 1 hour)  
├── ⚡ Major functionality impaired  
├── 📊 Dashboard partially unavailable  
├── 📤 Export system failure  
├── 📧 Email system down  
└── 🗺️ Map system failure  
  
🟡 PRIORITY 3 - MEDIUM (Response: 4 hours)  
├── 🎨 UI rendering issues  
├── 📱 Mobile compatibility problems  
├── 📊 Chart display errors  
├── 🔍 Search functionality issues  
└── 📝 Form submission problems  
  
🟢 PRIORITY 4 - LOW (Response: Next business day)  
├── 🎨 Cosmetic UI improvements  
├── 📊 Minor chart inconsistencies  
├── 📝 Documentation updates  
├── 🔧 Performance optimizations  
└── 💡 Feature enhancement requests

#### 🛠️ Incident Response Workflow

⚡ IMMEDIATE RESPONSE (First 15 minutes)  
├── 📝 Document incident time and symptoms  
├── 🎯 Assess severity using classification matrix  
├── 🔍 Identify immediate workarounds  
├── 📢 Notify affected users if applicable  
├── 🚀 Begin preliminary troubleshooting  
└── 📋 Log all actions taken  
  
🔧 INVESTIGATION PHASE (15 minutes - 2 hours)  
├── 🔍 Detailed root cause analysis  
├── 📊 System log review and analysis  
├── 🗃️ Database integrity check  
├── 🌐 Network connectivity verification  
├── 📱 Cross-browser testing  
└── 💾 Backup system status check  
  
🛠️ RESOLUTION PHASE (Duration varies by severity)  
├── 🔧 Implement technical solution  
├── 🧪 Test fix in isolated environment  
├── 🚀 Deploy fix to production  
├── ✅ Verify resolution effectiveness  
├── 📊 Monitor system stability  
└── 📋 Document solution steps  
  
📋 FOLLOW-UP PHASE (24-48 hours post-resolution)  
├── 📊 Post-incident review meeting  
├── 🔍 Root cause documentation  
├── 📝 Prevention strategy development  
├── 📚 Knowledge base update  
├── 🎓 Team training if applicable  
└── 📈 Process improvement recommendations

## 🔄 Change Management

### 📋 Change Approval Process

#### 🔧 System Change Categories

🟢 LOW IMPACT CHANGES (No approval required)  
├── 👤 Profile information updates  
├── 📧 Email configuration changes  
├── 🎨 Minor UI text updates  
├── 📊 Report format adjustments  
└── 📝 Documentation updates  
  
🟡 MEDIUM IMPACT CHANGES (Supervisor approval required)  
├── 🔒 Security settings modifications  
├── 📊 Dashboard layout changes  
├── 📤 Export format modifications  
├── 🔔 Notification system updates  
└── 📱 Mobile interface changes  
  
🔴 HIGH IMPACT CHANGES (Formal approval process)  
├── 💾 Database schema modifications  
├── 🔐 Authentication system changes  
├── 🌐 Server infrastructure updates  
├── 🔄 Backup procedure changes  
└── 🚨 Security protocol modifications

#### 📝 Change Implementation Workflow

📋 CHANGE REQUEST PROCESS  
├── 📝 Document change requirements  
├── 💼 Provide business justification  
├── 🎯 Assess impact and risks  
├── 📅 Propose implementation timeline  
├── 🧪 Outline testing procedures  
└── 📋 Create rollback plan  
  
✅ APPROVAL PHASE  
├── 👥 Submit to appropriate approver  
├── 📊 Technical review by IT team  
├── 🔒 Security assessment if applicable  
├── 💰 Cost/resource analysis  
├── 📅 Schedule approval/denial  
└── 📋 Document approval decision  
  
🚀 IMPLEMENTATION PHASE  
├── 🧪 Test in development environment  
├── 📅 Schedule maintenance window  
├── 📢 Notify affected users  
├── 🔄 Execute change procedures  
├── ✅ Verify implementation success  
└── 📊 Monitor system stability  
  
📋 POST-IMPLEMENTATION  
├── 🧪 Comprehensive functionality testing  
├── 📊 Performance impact assessment  
├── 👥 User feedback collection  
├── 📝 Update documentation  
├── 🎓 Provide user training if needed  
└── 📈 Evaluate change effectiveness

## 📱 Mobile & Remote Access

### 📱 Mobile Device Guidelines

#### 📲 Supported Mobile Platforms

✅ TESTED MOBILE BROWSERS  
├── 📱 iOS Safari (iPhone/iPad)  
├── 🤖 Android Chrome  
├── 🔥 Firefox Mobile  
├── 🌐 Samsung Internet  
└── 🪟 Edge Mobile  
  
📊 MOBILE FUNCTIONALITY  
├── ✅ Full login capability  
├── ✅ Dashboard viewing (responsive design)  
├── ✅ Complaint form submission  
├── ✅ Basic analytics viewing  
├── ✅ Profile management  
├── ⚠️ Limited export functionality  
└── ⚠️ Reduced map interactivity

#### 🔒 Remote Access Security

🔐 SECURITY REQUIREMENTS  
├── 🛡️ HTTPS connection mandatory  
├── 🔒 Secure VPN recommended for public WiFi  
├── 📱 Device passcode/biometric lock required  
├── 🚫 Auto-logout after 30 minutes of inactivity  
├── 📝 Session logging for audit trail  
└── 🔄 Regular security patch updates  
  
📋 REMOTE ACCESS CHECKLIST  
├── ✅ Verify secure network connection  
├── ✅ Confirm browser security settings  
├── ✅ Check device for malware  
├── ✅ Use private/incognito browsing mode  
├── ✅ Log out completely when finished  
└── ✅ Clear browser cache if on shared device

## ✅ Quality Assurance

### 📊 Daily Quality Control

#### 🔍 Data Quality Validation

📋 DAILY DATA QUALITY CHECKLIST  
├── ✅ Complaint data completeness review  
├── ✅ Regional assignment accuracy check  
├── ✅ Priority level appropriateness validation  
├── ✅ Date field consistency verification  
├── ✅ Contact information format validation  
├── ✅ Status workflow compliance check  
└── ✅ Duplicate entry identification  
  
🌍 REGIONAL DATA ACCURACY  
├── ✅ Mathura coordinates: 27.4924°N, 77.6736°E  
├── ✅ Agra coordinates: 27.1767°N, 78.0081°E  
├── ✅ Bhimasar coordinates: 23.2066°N, 69.7017°E  
├── ✅ State classifications: UP (Mathura/Agra), Gujarat (Bhimasar)  
├── ✅ Map marker positioning accuracy  
└── ✅ Regional statistics correlation

#### 🧪 System Performance Testing

⚡ PERFORMANCE BENCHMARKS  
├── 🏠 Dashboard Load Time: <3 seconds  
├── 📋 All Complaints Page: <4 seconds  
├── 📊 Analytics Page: <5 seconds  
├── ⚙️ Settings Page: <2 seconds  
├── 📤 Export Generation: <30 seconds  
├── 🔄 Auto-refresh Cycle: 30 seconds  
└── 📧 Email Delivery: <10 seconds  
  
🧪 WEEKLY TESTING PROTOCOL  
├── 📊 Full system functionality test  
├── 🔐 Authentication system verification  
├── 📤 Export functionality validation  
├── 📧 Email system testing  
├── 🗺️ Map display and interaction testing  
├── 📱 Mobile responsiveness check  
└── 🔒 Security feature validation

### 📈 Performance Monitoring

#### 📊 Key Performance Indicators (KPIs)

🎯 SYSTEM AVAILABILITY  
├── Target: 99.9% uptime  
├── Measurement: Daily availability percentage  
├── Alert Threshold: <99% in any 24-hour period  
└── Reporting: Weekly availability report  
  
⚡ RESPONSE TIME METRICS  
├── API Response Time: <500ms average  
├── Database Query Time: <200ms average  
├── Page Load Time: <3 seconds average  
└── Export Generation: <30 seconds average  
  
👥 USER SATISFACTION METRICS  
├── Login Success Rate: >99%  
├── Export Success Rate: >98%  
├── Email Delivery Rate: >99%  
└── Error Rate: <1% of total requests

### 🏆 Commitment to Excellence

**BN Support Desk Standard Operating Procedures**  
*Ensuring Consistent, Secure, and Efficient Operations*

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