

# SMS System Plan — Text messaging for Pilot

**Status:** Draft (2026-04-17) — pre-implementation **Goal:** Let tenants send/receive SMS (and MMS) from their Pilot account the same way they send emails, scoped to a company-owned Twilio number, threaded into conversations, and reachable from projects + contacts.

## What already exists (audit — verified 2026-04-17)

Piece	Table/File	State	Notes
Inbound webhook capture	<code>sms_inbound</code>	1 row, basic	<code>from_number</code> , <code>to_number</code> , <code>message_body</code> , <code>raw_payload</code> , <code>processed</code> — no threading, no contact link
Per-company Twilio number	<code>company_phone_numbers</code>	1 row (Air4, +18882981641 toll-free, unverified)	<code>twilio_sid</code> , <code>number_type</code> , <code>purpose</code> , <code>verification_status</code> (pending/approved for 10DLC/toll-free)
Per-user Twilio creds	<code>user_email_settings.sms_*</code>	fields exist	BYO Twilio account path — likely deprecate for platform-managed model
Outbound stub (unused)	<code>outgoing_emails.message_type='sms'</code>	<b>0 rows of 304</b>	Dead path. AWS SNS, one-way, no threading.
System SMS	<code>config/core/mfa.php::sendSMS()</code>	in use (login MFA)	AWS SNS, no Twilio, direct send not queued
Planned (not built)	<code>airchat-mobile-app.md</code>	design only	<code>sms_conversations</code> + <code>sms_messages</code> in Phase 3 roadmap

**Conclusion:** Infrastructure is seeded but incoherent. Outbound, threading, and project/contact linking don't exist.

## Architecture decision: separate SMS pipeline (NOT bolted onto email)

**Reject** reusing `outgoing_emails` for SMS threads. Reasons:

- Email queue is entity-based (one email per `entity_id`); SMS is thread-based (many messages per conversation).
- Email backends are SES/Gmail/SMTP; SMS backend is Twilio (already in `company_phone_numbers`).
- Compliance (STOP/HELP/START keywords, quiet hours, 10DLC/toll-free verification gating, opt-in audit trail) has no home in email schema.
- MMS media handling, delivery receipts, Twilio SIDs have no columns.

**Keep** `outgoing_emails` SMS stub retired. Migrate `sendSMS()` MFA path to the new pipeline in Phase 2.

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## Schema

```
-- Conversations / threads
CREATE TABLE sms_threads (
  id INT AUTO_INCREMENT PRIMARY KEY,
  company_id INT NOT NULL,
  company_phone_id INT NOT NULL,      -- FK company_phone_numbers.id (our
number)
  peer_phone VARCHAR(20) NOT NULL,    -- E.164 customer number
  contact_id INT DEFAULT NULL,        -- FK contacts.id, nullable
  project_id INT DEFAULT NULL,        -- FK crm_projects.id, nullable
(last linked project)
  status ENUM('active','resolved','closed','blocked') DEFAULT 'active',
  opt_in_status ENUM('unknown','opted_in','opted_out') DEFAULT 'unknown',
  opt_in_source VARCHAR(50) DEFAULT NULL,  -- 'web_form', 'verbal',
'reply_yes', etc.
  opt_in_at DATETIME DEFAULT NULL,
  opt_out_at DATETIME DEFAULT NULL,
  last_message_at DATETIME DEFAULT NULL,
  last_direction ENUM('inbound','outbound') DEFAULT NULL,
  unread_count INT DEFAULT 0,
```

```
message_count INT DEFAULT 0,
created_at TIMESTAMP DEFAULT CURRENT_TIMESTAMP,
UNIQUE KEY uq_thread (company_phone_id, peer_phone),
INDEX idx_company (company_id, status, last_message_at),
INDEX idx_contact (contact_id),
INDEX idx_project (project_id)
);

-- Individual messages (inbound + outbound)
CREATE TABLE sms_messages (
  id INT AUTO_INCREMENT PRIMARY KEY,
  thread_id INT NOT NULL,
  company_id INT NOT NULL,
  direction ENUM('inbound','outbound') NOT NULL,
  body TEXT,
  media_urls LONGTEXT,          -- JSON array of Twilio media URLs
  (MMS)
  twilio_sid VARCHAR(64) DEFAULT NULL, -- Twilio message SID (outbound or
inbound)
  status
ENUM('queued','sending','sent','delivered','undelivered','failed','received')
DEFAULT 'queued',
  error_code VARCHAR(20) DEFAULT NULL,
  error_message TEXT DEFAULT NULL,
  segment_count TINYINT DEFAULT 1,    -- Twilio reports num_segments
  price_amount DECIMAL(10,6) DEFAULT NULL,
  price_currency VARCHAR(8) DEFAULT NULL,
  sender_user_id INT DEFAULT NULL,    -- which user sent (outbound only)
  entity_type VARCHAR(40) DEFAULT NULL, --
'project','manual','campaign','mfa', etc.
  entity_id INT DEFAULT NULL,
  scheduled_at DATETIME DEFAULT NULL,
  sent_at DATETIME DEFAULT NULL,
  delivered_at DATETIME DEFAULT NULL,
  created_at TIMESTAMP DEFAULT CURRENT_TIMESTAMP,
  INDEX idx_thread (thread_id, created_at),
  INDEX idx_status (status, scheduled_at),
  INDEX idx_twilio (twilio_sid),
  INDEX idx_entity (entity_type, entity_id)
);

-- Company-level Twilio account credentials (one row per company that owns a
number)
CREATE TABLE company_twilio_credentials (
```

```
    company_id INT PRIMARY KEY,
    account_sid VARCHAR(64) NOT NULL,
    auth_token_encrypted TEXT NOT NULL, -- encrypted at rest
    account_type ENUM('subaccount','byo') DEFAULT 'subaccount',
    messaging_service_sid VARCHAR(64) DEFAULT NULL, -- optional Twilio
Messaging Service
    webhook_secret VARCHAR(64) DEFAULT NULL, -- validate inbound
webhooks
    created_at TIMESTAMP DEFAULT CURRENT_TIMESTAMP,
    updated_at TIMESTAMP DEFAULT CURRENT_TIMESTAMP ON UPDATE
CURRENT_TIMESTAMP
);

-- Templates (mirrors email_templates, SMS-specific)
CREATE TABLE sms_templates (
    id INT AUTO_INCREMENT PRIMARY KEY,
    company_id INT NOT NULL,
    name VARCHAR(100) NOT NULL,
    category VARCHAR(50) DEFAULT NULL, -- 'project','onboarding','reminder'
    body TEXT NOT NULL,
    variables LONGTEXT, -- JSON array of {{vars}}
    is_active TINYINT(1) DEFAULT 1,
    created_at TIMESTAMP DEFAULT CURRENT_TIMESTAMP,
    INDEX idx_company (company_id, is_active)
);

-- Amend sms_inbound to link into the thread once processed
ALTER TABLE sms_inbound
    ADD COLUMN thread_id INT DEFAULT NULL AFTER id,
    ADD COLUMN message_id INT DEFAULT NULL AFTER thread_id,
    ADD INDEX idx_thread (thread_id);
```

### Design notes:

- Thread uniqueness is (`company_phone_id`, `peer_phone`) — if the same customer texts two of our numbers, they're two threads (correct — different business contexts).
- `contact_id` and `project_id` are **denormalized last-link** on the thread, messages carry `entity_type/entity_id` for full history.
- `unread_count` surfaces sidebar badge without a join (same pattern as AirChat).

## Backend services & files

### New services

1. **storage/services/scripts/sms-queue-service.php** — daemon (Service Manager ID TBD, e.g. 30)
  - Polls `sms_messages` WHERE `status='queued'` AND (`scheduled_at IS NULL` OR `scheduled_at <= NOW()`)
  - Sends via Twilio REST, stores `twilio_sid`, updates status → `sending` → (webhook updates to `sent/delivered/failed`)
  - Retry with exponential backoff (mirror email daemon pattern)
  - Respects 10DLC/toll-free verification: if `company_phone_numbers.verification_status != 'approved'`, queue stays held with `error_message='number_unverified'` (avoid Twilio carrier rejection)
  - Quiet hours honored: US rule = no marketing texts 9pm-8am recipient local time (phone-to-timezone lookup via `area code` or `contacts.timezone`)
2. **pilot/includes/handlers/twilio-webhook-handler.php** — public endpoint (validate signature)
  - Routes: `inbound-sms`, `status-callback`
  - Inbound: upsert `sms_threads`, insert `sms_messages(direction='inbound')`, increment `unread_count`, match contact by phone, trigger in-app notification
  - Auto-handles `STOP / START / HELP` keywords → sets `opt_in_status`, sends compliance auto-reply
  - Status callback: update `sms_messages.status + delivered_at/error_*`
3. **pilot/includes/services/twilio-service.php** — `TwilioService` class
  - Wraps Twilio REST (no SDK — use curl, like the rest of the codebase)
  - `sendMessage($companyId, $fromNumber, $to, $body, $mediaUrls=[])`
  - `purchaseNumber($companyId, $areaCode, $tollFree=false)`
  - `submitTollFreeVerification($companyPhoneId, $businessData)` → stores `verification_sid`
  - `checkVerificationStatus($companyPhoneId)` → polls + updates `verification_status`
4. **pilot/includes/handlers/sms-handler.php** — page/AJAX handler for SMS Management

- Actions: `list_threads`, `get_thread`, `send_message`, `mark_read`, `link_contact`, `link_project`, `opt_out`

## Modified

- `config/core/mfa.php::sendSMS()` → route through `TwilioService::sendMessage` (MFA becomes just another `entity_type='mfa'` outbound message). Retire AWS SNS.
  - `outgoing_emails.message_type='sms'` → mark deprecated; optional cleanup migration later.
  - Service Manager registry → add `sms-queue-service` (systemd daemon).
  - AirChat mobile unified inbox → query `sms_threads` alongside `airchat_conversations`.
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## UI / touchpoints

### Phase 1 surfaces (minimum viable)

- 1. Project detail page** — "Send Text" button next to "Send Email"
  - Opens modal: pre-fills recipient from `project.primary_contact.phone`, template picker, variable substitution, send
  - Message stored as `entity_type='project'`, `entity_id=<project_id>`, thread gets `project_id` updated
- 2. Contact detail page** — "Send Text" button
  - Same modal, recipient = `contact.phone`, `entity_type='contact'`
- 3. SMS Management page** (new, mirrors Email Management)
  - Tabs: Threads (default), Sent, Templates, Numbers, Compose
  - Threads tab: Air4List of `sms_threads` — columns: peer, contact name, last message preview, unread badge, status, `last_message_at`
  - Row click → thread detail modal: full message history + reply input (like AirChat conversation view)
  - Sent tab: Air4List of `sms_messages` where `direction=outbound` (with same eye-icon view action pattern we just added to email)
  - Numbers tab: manage `company_phone_numbers`, purchase new, submit verification
- 4. Sidebar badge** — red pill on SMS menu item when `SUM(unread_count) > 0` (reuse `notification-badge-handler.php` pattern from AirChat)

## Phase 2 surfaces

5. **Contact import/edit** — validate + normalize phone to E.164, track opt-in source
6. **Airmail campaigns** — add SMS channel (reuse templates, target contacts with opted-in phones)
7. **Quiet hours & timezone** — admin settings panel

## Phases / milestones

Phase	Scope	Outcome
1	Schema migration + TwilioService + sms-queue daemon + webhook handler + STOP/HELP keywords	Can send/receive SMS end-to-end (via API only, no UI)
2	SMS Management page (Threads, Sent, Compose tabs) + sidebar badge	Can use SMS in browser
3	"Send Text" from project + contact pages + templates	Project/contact integration
4	Number management UI (purchase + toll-free verification submission)	Tenants self-serve 800 numbers
5	Airmail SMS campaigns + quiet hours + opt-in audit trail	Marketing-grade SMS
6	Retire <code>outgoing_emails</code> SMS stub + migrate MFA to <code>sms_messages</code>	Cleanup

Phase 1-3 is the MVP for "send texts from projects" requested in this conversation.

## Compliance checklist (must-haves before Phase 2 ships)

- [ ] STOP keyword auto-handled → `opt_in_status='opted_out'`, auto-reply "You're unsubscribed..."
- [ ] START / UNSTOP re-opt-in
- [ ] HELP keyword → configurable auto-reply per company
- [ ] Block outbound when `opt_in_status='opted_out'` (hard gate, raise error)
- [ ] Block outbound when `company_phone_numbers.verification_status != 'approved'` for toll-free (Twilio rejects anyway)
- [ ] Audit trail: every outbound has `sender_user_id`, every opt-in change has source + timestamp

- [ ] Twilio webhook signature validation (prevent spoofed inbound)
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## Open decisions (need input)

1. **Twilio account model** — Air4 master account with per-tenant subaccounts (cleaner billing, we collect + mark up) vs BYO (tenants bring their own Twilio)? `user_email_settings.sms_*` suggests BYO path was started, `company_phone_numbers.twilio_sid` suggests platform-managed. **Recommend platform-managed subaccounts** — simpler tenant UX, enables us to resell.
  2. **Per-user vs per-company phone numbers** — one shared company number (all users send from it) vs per-user numbers? Recommend **per-company** for v1, per-user later if needed.
  3. **Service ID for sms-queue daemon** — next available (check service-registry.md).
  4. **Credits/storage model** — should SMS consume AI credits? Or dedicated "SMS credits" counter on companies? Twilio costs ~\$0.008/SMS + ~\$0.02/MMS + verification fees.
  5. **AirChat mobile integration** — fold SMS threads into unified inbox from day 1 (yes, already planned).
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## First implementation step

Once Open Decisions #1 + #4 are answered:

1. Write migration: `storage/migrations/2026-04-17-sms-system.sql` (create tables above)
2. Scaffold `TwilioService` with `sendMessage()` + auth wiring
3. Scaffold `sms-queue-service.php` daemon
4. Scaffold `twilio-webhook-handler.php` with signature validation + STOP/HELP
5. Manual end-to-end test: queue → send → webhook status callback → verify row updates
6. Then UI (Phase 2+)