Q5000 - CDR Reporter

User Guide

Version 2.8.3

IntelliVoss

Q5000 - CDR Reporter

User Guide

Version 2.7.5

Call Detail Record Analysis & Reporting

1. Introduction

CDR Reporter is a powerful Windows desktop application for analyzing PBX call detail records. It provides comprehensive reporting, cost tracking, budget management, and call classification capabilities with integrated Gemini AI for intelligent phone number identification.

Key Features:

• **First Run Setup Wizard** with 4 configuration paths (SSH, CSV, Demo, Restore)

• **Multi-PBX server support** - connect to multiple PBX systems with per-server SSH tunnels, per-server sync state, and trusted SSH host pinning

• **Gemini AI Integration** for phone lookup, bulk identification, and anomaly detection

• **AI Dashboard Insights** on both Outbound and Inbound Dashboards - weekly-cached summary cards (v2.1.1+)

• **AI Budget Forecast card** on Outbound Dashboard - daily-cached month-end projection per department with at-risk highlighting (v2.1.2+)

• **AI Security Alert card** on Outbound Dashboard - PBX fraud / unusual extension activity detection, anomaly-gated so AI is only invoked when a spike is actually detected (v2.1.2+)

• **AI Suggest Departments** in Extension Management - triage unassigned extensions by destination patterns (v2.1.2+)

• **AI Pattern Detection** for automatic personal number identification in Personal vs Business report (v1.8.8+)

• **Call Identifier Mode** auto-detection (PIN, Extension, or Mixed) with manual override in Settings (v1.8.8+)

• **N-level Department Hierarchy** with unlimited depth parent/child nesting; name uniqueness now per-parent (v2.1.0+)

• **PIN/Account code mapping** to users and departments

• **Automated call cost calculation** and budget tracking

• **Business vs personal call classification** with phonebook matching

• **Professional PDF and Excel report generation** with 20+ report types and **full PDF/Excel parity** - every Excel tab is a dedicated PDF page (v2.1.0+)

• **AI Insights embedded in PDF and Excel exports** (v1.8.7+)

• **Interactive Outbound and Inbound Dashboards** with AI insights and anomaly detection - Inbound Dashboard is now a top-level sidebar entry (v2.1.1+)

• **Budget alerts and notifications** with acknowledgement tracking

• **Call policies and compliance tracking** with violation reports and AI Brain button

• **Billing module** with multi-currency, tax invoices, and fixed charges

• **Inbound Dashboard** for specialized call-in reporting with SLA, recovery and abandonment metrics, and AI Insights (v1.9.1+, promoted to top-level nav in v2.1.1)

• **Dashboard period selector** - Monthly / Weekly / Daily / Custom period control shared by both dashboards (v2.4.0+)

• **Scheduled reports and scheduled billing** - background generation and email delivery via the Q5000 relay (v2.4.0+)

• **Extension management** with multi-PBX support and AI department suggestions

• **Automated backups** and disaster recovery

2. Getting Started

2.1 System Requirements

• Windows 10 (64-bit) version 1809+ or Windows 11

• 4 GB RAM minimum, 8 GB recommended

• 500 MB disk space

• 1366x768 minimum display resolution

• Network access to PBX server via SSH

2.2 Installation

1. Download **`CDRReporter-Setup.msi`**

2. Double-click to run installer

3. Follow installation wizard

4. Launch from desktop shortcut

2.3 First Run Setup Wizard (v1.7.0+)

On first launch, the **Setup Wizard** appears with 4 configuration paths:

Path 1: SSH Connection (Real PBX System)

1. **PBX SSH Connection** - Enter SSH host, port, username, password

2. **CDR Database** - Enter MySQL host, port, database, credentials

3. **Test Connections** - Verify both connections succeed

4. **Dashboard** - Loads your live CDR data immediately

Path 2: Demo Mode (No PBX Needed)

1. **Create Demo Data** - Loads about 900 calls across 4 months, 7 departments, 12 staff, 2 call policies

2. **Explore Features** - Try all features with sample data

3. **Clear Demo Data** - Button in Settings -> Clears sample data when done

Path 3: CSV Import (Bulk CDR Data)

1. **Upload CSV File** - Select your CDR records spreadsheet

2. **Map Columns** - Match CSV columns to CDR fields (src, dst, duration, etc.)

3. **Verify & Import** - Review preview and confirm import

Path 4: Restore from Backup

1. **Select Backup File** - Choose a previous backup file

2. **Restore Configuration** - Recovers your previous settings, PIN mappings, departments

3. **Verify Data** - Ensure all data restored correctly

Note: First Run Wizard triggers again on reinstall (using registry NewInstall flag).

License activation flows into setup (v2.7.1+): if you activate your license when the app first starts, the Setup Wizard opens immediately after activation - there is no need to restart the application.

2.4 Demo Mode (v1.7.0+)

Demo Mode provides a safe way to explore CDR Reporter without a real PBX:

Demo Data Includes:

• About 900 sample call records across 4 months (enough history for Review Budgets and period comparisons)

• 6 departments (Sales, Marketing, IT, Support, Finance, HR)

• 12 staff members with PIN mappings

• 5 pre-configured call policies

• Sample phonebook with supplier/employee contacts

• Cost rules for local, mobile, international calls

• Budget configurations with alerts

Trying Demo Mode:

1. On first launch, select "Create Demo" in Setup Wizard

2. Dashboard loads with sample data

3. Generate reports, configure departments, view analytics

4. When done, go to Settings -> Click "Clear Demo Data" button

5. Restart with real PBX configuration

3. AI Features / Gemini Integration (v1.8.0+)

CDR Reporter integrates Gemini AI for intelligent phone number identification, bulk lookup, dashboard insights, anomaly detection, and pattern-based personal number classification.

3.1 Overview

What AI Does:

• Identifies unknown phone numbers (business, service type, location)

• Classifies call type (supplier, customer, service, etc.)

• Detects spending anomalies and unusual patterns

• Bulk identify multiple unknown numbers at once

• Provides contextual information for suspicious calls

• Detects personal-use mobile numbers from call patterns (v1.8.8+)

• Embeds AI summaries in exported PDF and Excel reports (v1.8.7+)

License Tier Limits:

• **Starter:** 50 AI lookups per day

• **Business:** 100 AI lookups per day

• **Professional:** Unlimited AI lookups

• Daily limit resets at midnight UTC

Daily Limit Behavior:

• When limit reached, snackbar shows "Daily AI limit reached"

• Some AI buttons become disabled

• You can still use other features; only AI features are limited

• Try again after midnight UTC

3.2 AI Phone Lookup (Phonebook)

Single Lookup:

1. Go to Phonebook

2. Find an entry with an unknown number (no category assigned)

3. Click **AI Brain icon** next to the number

4. Wait for results (5-15 seconds)

5. AI suggests: Number type, business name, location

6. Click **Accept** to save classification, or **Reject** to dismiss

Bulk Lookup ("Look Up All Unknown"):

1. Go to Phonebook

2. Click **Bulk Lookup** button (top menu)

3. AI processes all unclassified numbers in background

4. Results populated as they complete

5. Review suggestions and accept/reject each

3.3 Dashboard AI Insights Card (v1.8.0+)

The **AI Insights** card appears on the Dashboard and shows:

• **Anomaly Detection:** Unusual spending patterns or call behavior

• **Suspicious Activity:** Numbers flagged as potential fraud/spam

• **Peak Analysis:** Unusual busy hour patterns

• **Recommendations:** Suggested cost reductions or policy adjustments

The insights are **weekly-cached** and automatically refresh every 7 days. Click card to drill down for details and related calls.

3.4 Dashboard AI Brain Buttons

Four call grids on the Dashboard have **AI Brain icons** for each call:

1. **Most Expensive Calls** - Click brain to identify caller/destination

2. **Longest Duration Calls** - Get context on lengthy calls

3. **Top Destinations** - Identify destination type and location

4. **Recent Calls** - Quickly identify any unknown number

Using AI Brain Button:

1. Hover over a call row

2. Click **Brain icon**

3. AI identifies the number

4. Results shown in tooltip or detail panel

5. Click **+** to add to Phonebook with AI classification

3.5 Policy Violations AI Button

In **Policy Violations** view, each violation row has an **AI Brain icon**:

1. Click **Brain icon** on violation row

2. AI provides context on the violation:

• What the number/destination is

• Why it might violate the policy

• Suggested corrective action

3. Use for investigation and follow-up

3.6 Top Inbound Callers AI Identify & Search

In **Inbound Analytics** -> **Top Inbound Callers** grid, each row has:

• **AI Brain icon** - Click to identify that caller

• **Google Search icon -** Click to search the number online

• **Add to Phonebook** - Save identified caller with classification

Bulk identify all unknown inbound callers at once with **Bulk AI Identify** button.

3.7 PhoneLookupGuard (Skip Rules)

AI automatically skips certain number patterns:

• **Extension numbers** (internal extensions like 101, 201, 3001)

• **Emergency numbers** (911, 999, 112, etc.)

• **Service codes** (411, 511, 611, etc.)

• **Already classified numbers** (numbers already in phonebook)

These rules prevent unnecessary AI lookups for obvious number types.

3.8 AI Data Privacy

What data leaves your machine:

• Phone number (digits only)

• Approximate location (city/country based on number)

What does NOT leave:

• Call duration, cost, or time

• CDR details or metadata

• Employee names or department info

• Your phonebook or PIN mappings

• Any configuration data

Gemini API Key:

• Managed server-side (GEMINI.md configuration)

• Your API key never stored locally

• Requests routed through secure channel

3.9 AI Insights in PDF/Excel Exports (v1.8.7+)

When you generate an AI insight **before** exporting a report, the insight is automatically embedded in the export output.

PDF exports append a styled "AI Insights" section at the bottom of the document. The section title is contextual:

• **"AI Executive Summary"** - Summary Report

• **"AI Audit Findings"** - Personal vs Business report

• **"AI Forecast & Predictions"** - Trend Analysis report

Excel exports add an **"AI Insights"** tab as the last sheet in the workbook. The sheet includes the generation timestamp and the full AI response text.

To use this feature:

1. Generate your report

2. Click the relevant **AI button** (AI Summary, AI Audit, or AI Forecast) and wait for the result

3. Click **Export PDF** or **Export Excel**

4. The AI insight is automatically included in the output

3.10 AI Pattern Detection - Personal vs Business (v1.8.8+)

The **Personal vs Business** report includes a **"Detect & Save Personal Numbers"** button that uses pattern analysis to find likely personal-use mobile numbers in your CDR data - even if they are not yet in your phonebook.

How it works:

• Scans unclassified SA mobile numbers (06x, 07x, 081-085 prefixes)

• Flags numbers matching any suspicious pattern:

• Called 3 or more times in a single day

• Called on 5 or more distinct days within the report period

• Average call duration over 10 minutes

• VoIP ranges (086-089) are excluded from detection

• Detected numbers are displayed in a **confirmation dialog** showing the number, call count, and reason

• Select which numbers to save, then click **Save to Phonebook**

• Saved numbers are added as **Personal** with **Category: AI**

After saving:

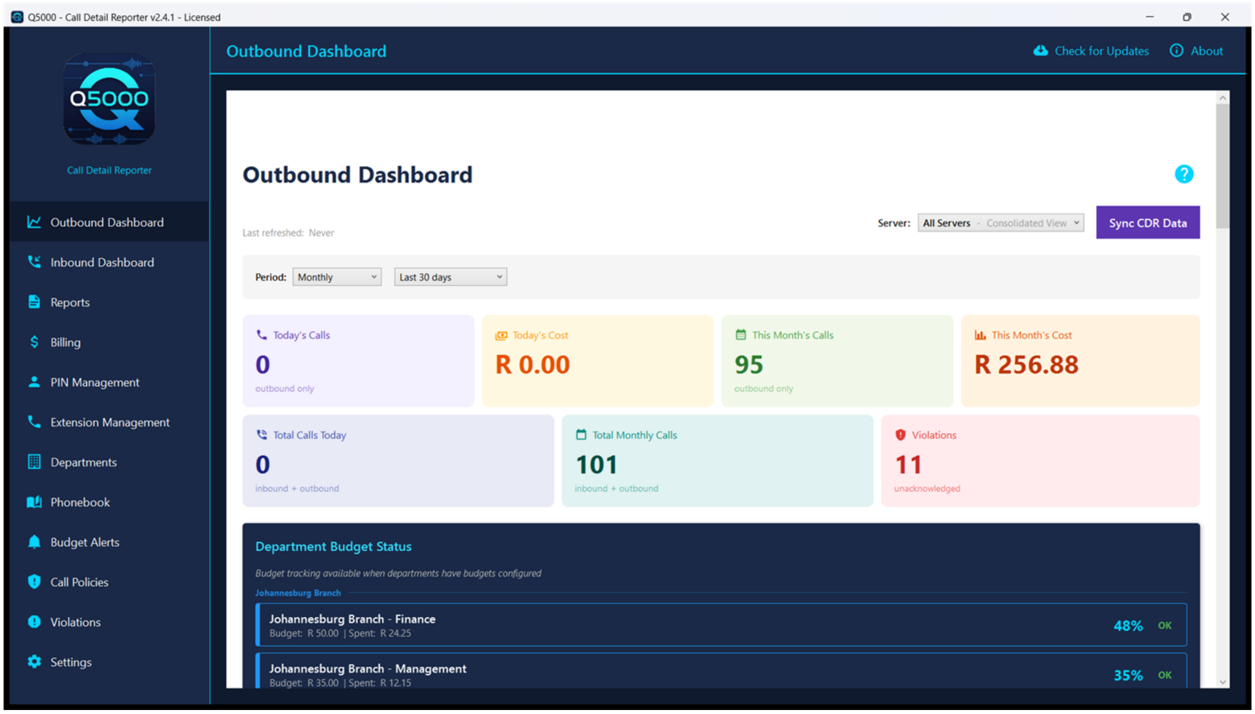
• Re-run the Personal vs Business report

• Previously unclassified calls to those numbers now appear as Personal

• AI-classified entries are visible in Phonebook with the "AI" category tag

4. Outbound Dashboard (renamed from "Dashboard" in v2.1.1)

The **Outbound Dashboard** is the first entry in the sidebar (the second is the Inbound Dashboard - see section 11). It provides an overview of outbound call statistics, costs, trends, and budget status.



The Outbound Dashboard - summary tiles, period selector and Department Budget Status

Period Selector (v2.4.0+):

Both dashboards share a **Period** selector in the toolbar:

• **Monthly -** a month dropdown offering "Last 30 days" (the default) plus the past 24 calendar months

• **Weekly -** a week picker; clicking any day snaps the selection to that Monday-Sunday week

• **Daily** - a single-day picker

• **Custom** - free From/To date range

On the Outbound Dashboard the selection drives the summary tiles (their labels adapt - the classic "Today's Calls / This Month" look is the default state), the Department Budget Status card (calendar-month selections only, since budgets are monthly), and both Busy Hour charts. The Top Reports and Recent Calls grids keep their own windows. On the Inbound Dashboard the selection drives everything, and for multi-day periods the three hourly charts switch to **per-day averages** ("Avg Calls/Day") so different period lengths stay comparable.

Summary Tiles:

• **Today's Calls** - Total calls and costs for current day

• **Monthly Total** - Month-to-date spending and budget usage percentage

• **Active Alerts -** Budget warnings requiring attention with severity indicators

• **Top Departments** - Highest spending departments this period

• **Recent Expensive Calls** - List of costly calls with destination and duration

• **Outstanding Invoices** (v1.6.2+) - Invoices pending payment

Charts and Analytics:

• **Call volume trends** over time (daily/hourly patterns) - Now using LiveCharts2 with column and line series charts (v1.9.1+)

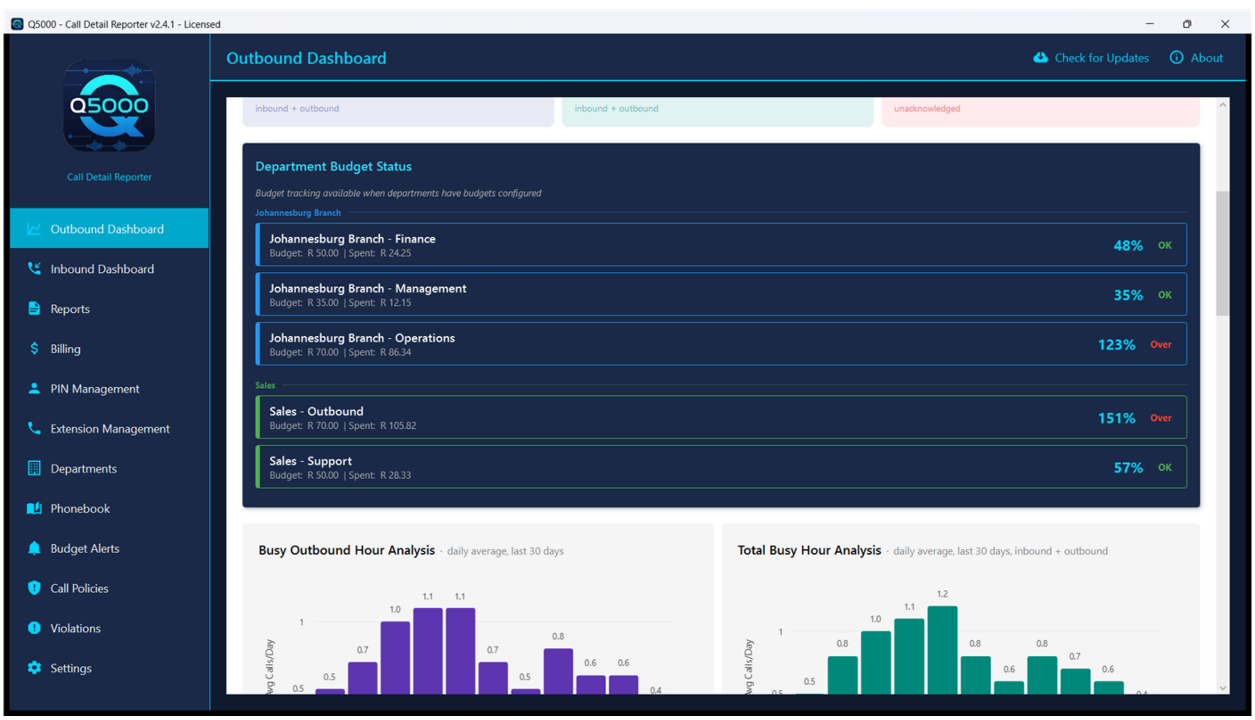
• **Busy Outbound Hour Analysis** showing peak outbound calling times, alongside a **Total Busy Hour Analysis** covering inbound + outbound calls (internal extension-to-extension calls are excluded, and each call is counted once however many extensions it rings)

• **Cost distribution** by category (business/personal/international)

• **Recent call history** with filtering

• **Budget utilization gauges** (red/amber/green)

• **Inbound vs Outbound** call breakdown



Department Budget Status with per-branch rollup, and the Busy Hour charts

Who made the call? In the Recent Calls and Top Reports grids the **Source** column shows the caller's name (from Extension Management), the **Extension** column shows the actual extension number, and the **User** column shows the name mapped to the PIN used for the call. Raw PIN codes are never displayed - anywhere in the app or in PDF/Excel reports - since PINs are private dial codes. A PIN that is not yet saved in PIN

Management appears masked (e.g. "PIN â€¢â€¢23"); click it to open PIN Management with the Add dialog pre-filled, type the person's name, and save.

Recent Calls filters: by default the grid hides calls that were never answered (0-second ring-only calls) **-** untick **Exclude Unanswered** to see them. The filter checkboxes remember their state between sessions. The grid shows a quick snapshot only; click **Open Full Report** next to the Recent Calls title (or on any Top Reports tab) to open the corresponding report in the Reports view, where you can search and filter every call. Double-clicking a row on the Most Expensive or Longest Duration tabs opens that call's day in Cost Analysis.

Collapsible AI cards: the AI Insights and Budget Forecast cards can be collapsed with the arrow on their header to shorten the dashboard - your choice is remembered between sessions.

Budget review reminder (v2.8.0+): an amber banner appears at the top of the Department Budget Status card when your department budgets haven't been checked against actual usage for more than three months (or have never been checked). **Review Now** opens Departments and starts the check straight away; **Ignore** hides the banner for another three months and explains what running on unchecked budgets costs. The banner only appears once at least one department has a budget and there is a complete month of call history to measure against. See section 7, *Review Budgets*.

AI Insights Card (v1.8.0+, updated v2.1.1):

• Anomaly detection highlighting unusual patterns

• Spending alerts and recommendations

• Suspicious activity flagged

• Weekly-cached summary (auto-refreshes every 7 days)

• Manual Refresh button if you want a fresh read sooner

• Click card to drill down for details and related calls

AI Budget Forecast Card (v2.1.2+):

A daily-cached forecast card projects each department's month-end spend based on the current daily burn rate.

When it appears:

• Only visible when at least one department has a monthly budget set

• Only visible from day 3 of the month onwards (needs enough days of data to project)

• Hidden gracefully if the license tier doesn't include AI

What it shows:

• Projected month-end spend per department

• Days remaining in the month

• At-risk departments (projected to exceed budget) highlighted with specific action bullets

• Refresh button to recalculate on demand (otherwise refreshes once per day)

Why it's useful:

• Catches a department that's overspending mid-month, before the alert thresholds trigger

• Burn-rate-based projection adjusts as spending patterns change

AI Security Alert Card (v2.1.2+):

The orange **"Unusual Extension Activity"** card is **completely hidden during normal operation**.

How it works:

• A free SQL check runs every 6 hours (no AI cost at this stage)

• Each extension's last 7 days are compared against a 30-day baseline

• The card appears only if at least one of the following is detected:

• **Volume spike** - more than 3x baseline volume AND >= 15 calls in the recent window

• **International call ratio spike** - >= 20% of recent calls are international vs < 5% in the baseline, AND >= 5 international calls

• Only when an anomaly is found is Gemini called to summarise the alert

Why it's useful:

• Detects PBX fraud (toll fraud, compromised extensions making international calls) without burning AI quota in normal operation

• The orange card is genuinely a "something needs your attention" signal **-** not a constant background widget

Dashboard Call Grids Actions:

Each call grid (Most Expensive, Longest, Top Destinations, Recent) has an **Actions column** with:

• **AI Brain icon** - Identify the number with Gemini AI

• **Google Search icon** - Search the number on Google

• Click call to view full details

Dashboard Actions:

• Click any tile to drill down for details

• Click calls to view full call details

• Hover charts for detailed tooltips

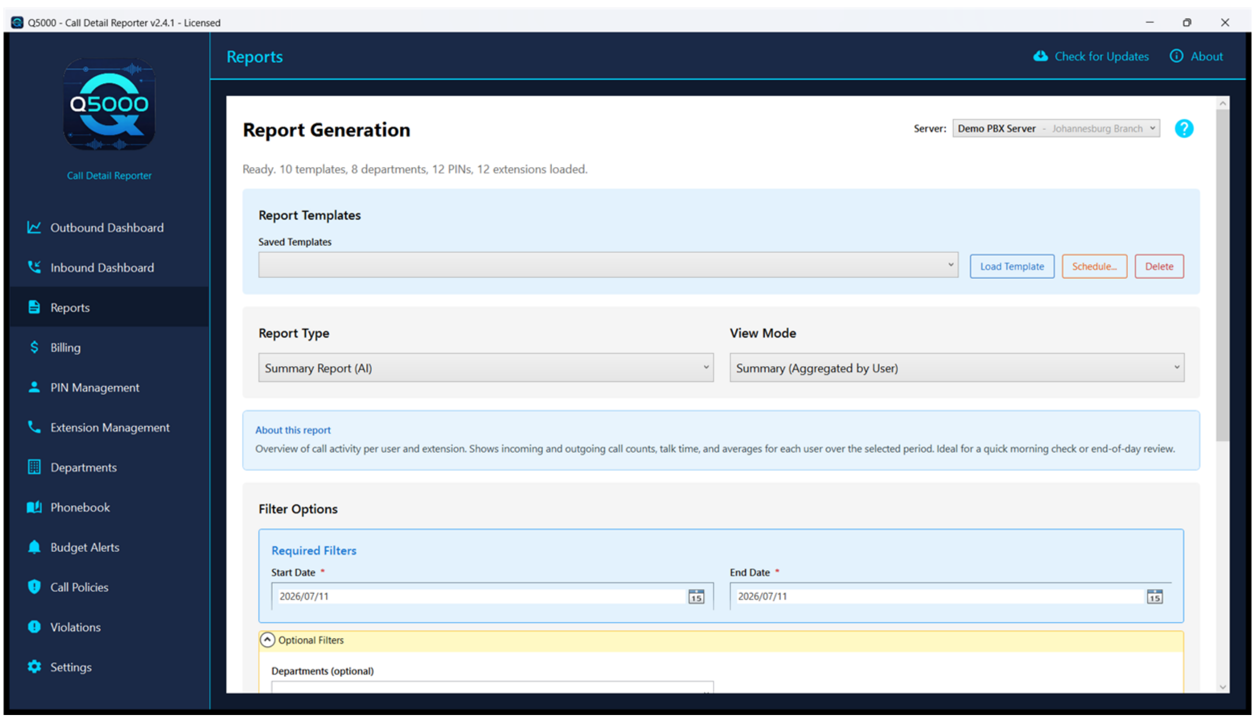
• Refresh button to manually sync CDR data

• **Sync Now with "All Servers" selected (v2.7.3+)** syncs every sync-enabled PBX

server, not just the primary one - the status line shows the combined record count and notes any server that failed

5. Reports

Generate professional reports in PDF or Excel format with 20+ pre-built templates.



The Report Generation view - templates, report type, view mode and filters

5.1 Report Types

Core Reports:

• **Daily Summary** - Overview for specific day with totals; includes **Inbound/Outbound split columns** and **configurable Top N filter** (5, 10, 20, 50, All) for top-callers and top-destinations sections (v2.0.1+)

• **Weekly Report** - Aggregated weekly statistics

• **Monthly Report** - Complete monthly breakdown

• **Department Report** - Filter by department with hierarchy rollup

• **User Activity Report** - Individual user history with Top N breakdown

• **Call Detail Report** - Complete call records with cost details

Advanced Reports (v1.6.0+):

• **Cost Analysis** - Detailed cost breakdown with trend analysis

• **Personal vs Business** - Call categorization with charts by individual; includes **"Detect & Save Personal Numbers"** button for AI pattern detection (v1.8.8+)

• **Top Expensive Calls** - Most costly calls with charts in summary/detailed modes

• **Trend Analysis** - Historical 90-day trends with forecasting

• **Inbound Analytics** - Dedicated inbound call reporting and caller analysis

• **Inbound vs Outbound** - Daily breakdown with pie charts

• **Comparative Period** - Compare metrics across different periods

• **Billing Report** - Rate cards, per-department/user billing

• **Policy Violations** - Compliance tracking and breach reporting

• **User Top N Charts** - Department-specific user breakdown charts

• **Top Dialed Numbers** (v2.4.0+) - Outbound destinations ranked by call count, with total duration, cost, and last-called time; Detailed view expands each number into its individual calls

• **Longest Duration Calls** (v2.4.0+) - Outbound calls ranked by billable duration, with user attribution

• **Internal Calls** (v2.6.2+) - Extension-to-extension traffic only. Four sections: summary tiles (total internal calls, talk time, average and longest call); the longest ext-to-ext calls, with unusually long ones highlighted; internal calls made and received per extension; and the extension pairs that talk to each other most (both directions combined). Attribution is by extension number and name - internal calls carry no cost and no PIN. Complements "Outbound" (external trunk calls) and the inbound reports, which both exclude internal traffic.

All report filters (Department, PIN, Extension, Category, destination pattern, ring duration) are applied consistently across every report type as of v2.4.0 - earlier versions silently ignored some filters on some reports. As of v2.7.2, every report, both dashboards, and budget alerts also count calls the same way, so the totals you see on one screen always agree with another.

5.2 Generating Reports

1. Select report type from list

2. Choose date range using date picker

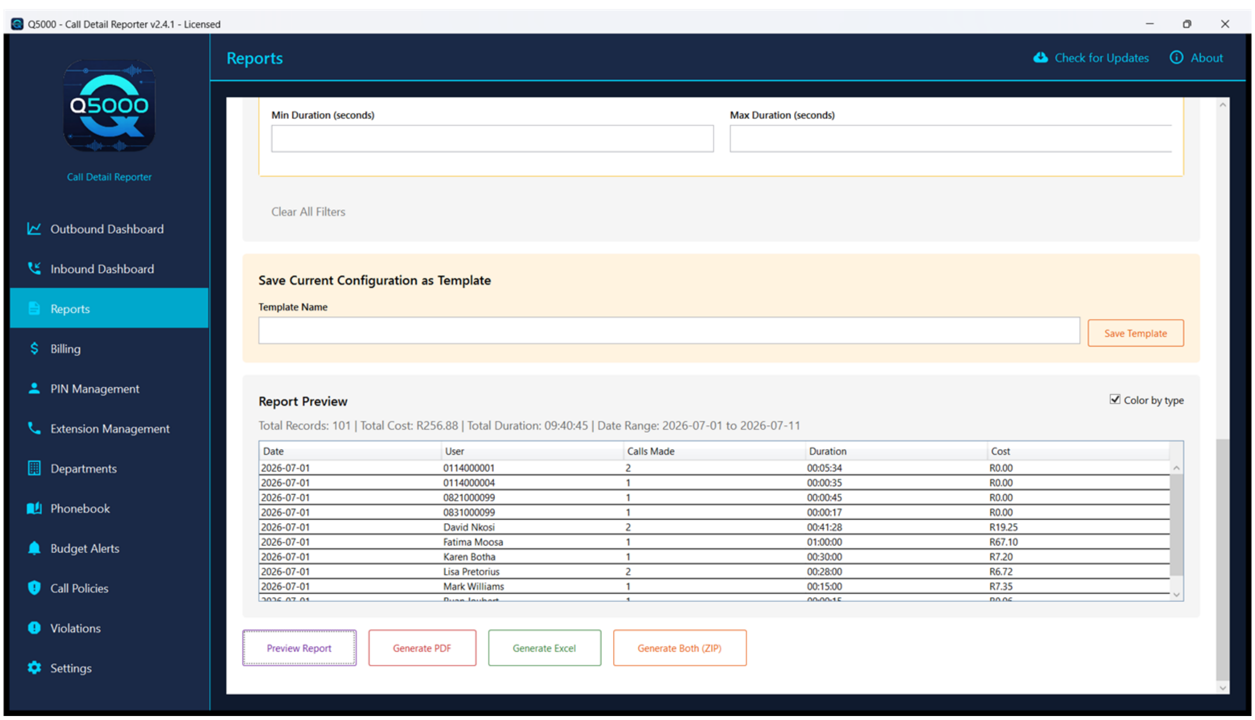
3. Apply filters (department, user, call type, category)

4. Select output format (PDF or Excel)

5. Click **Generate**

6. View in preview or save to disk

Very large date ranges (v2.7.2+): a report analyses up to 500,000 calls. If your date range contains more than that, the app warns you before generating so you can narrow the range - earlier versions silently left out the oldest calls.



Report Preview with record totals and one-click PDF/Excel/ZIP export

5.3 Report Templates

• Save custom filter combinations for reuse

• Manage templates in Reports section

• Export templates to share with team

• Schedule reports for automatic generation and email delivery (see 5.3.1)

• The **Call Category** filter lists your own phonebook categories alongside the built-in ones

• Preview shows a clear "no calls match" message when the filters return nothing

5.3.1 Scheduled Reports (automatic email delivery)

Any saved template can be generated and emailed automatically:

1. In **Reports**, select a saved template and click **Schedule...**

2. Tick **Enable this schedule** and choose:

• **Frequency**: Daily (covers the previous day), Weekly (covers the previous Monday-Sunday week), or Monthly (covers the previous calendar month)

• **Day and hour** the report should be sent

• **Format**: PDF, Excel, or both

• **Recipients**: one or more email addresses

3. Click **Save**

The report is generated in the background while the app is running and emailed via the Q5000 relay (**requires an activated license**). If the app was closed at the scheduled time, the report is sent shortly after the next start. The template's stored date range is ignored for scheduled runs - the schedule's own period (previous day/week/month) is always used.

> *Scheduled **billing** jobs (Billing view) run on the same background engine.*

5.4 Excel Report Formatting

Excel reports now feature:

• **Professional formatting** with improved column widths and header styling

• **"Q5000" styled text header** instead of embedded logo image (cleaner layout on narrow sheets) (v2.0.1+)

• **Auto-sized AI Insights tab** with proper column widths

• **Consistent formatting** across all report types

5.5 PDF/Excel Parity (v2.1.0+)

Every Excel tab is now reproduced as its own dedicated page in the PDF version of the same report. Summary and analysis pages appear first; the raw data table comes last. Per-report breakdown of the additions:

• **Call Detail Export -** Summary page, Daily Totals page, and Department Totals page (with hierarchy rollup) are now in the PDF as well as Excel.

• **Daily Summary (Detailed mode) -** Hourly Distribution page (24-hour table, peak hour highlighted) and Top Expensive Calls page added to PDF.

• **Department Report (Detailed mode) -** User Breakdown page (all users, 8 columns including Business/Personal %), Daily Trends page, and Call Details page (top 100 by cost) added to PDF.

• **Personal vs Business -** User Breakdown page (all users with violation highlighting), Flagged Calls page, Department Totals page, and Policy Violations page (red-tinted rows) added to PDF.

• **Cost Verification -** Zero Cost Calls page (top 100 non-internal zero-cost calls) and Unclassified Destinations page added to PDF.

• **Inbound Analytics -** Answer Rate and Last Call columns added to the Top Inbound Callers table in the PDF.

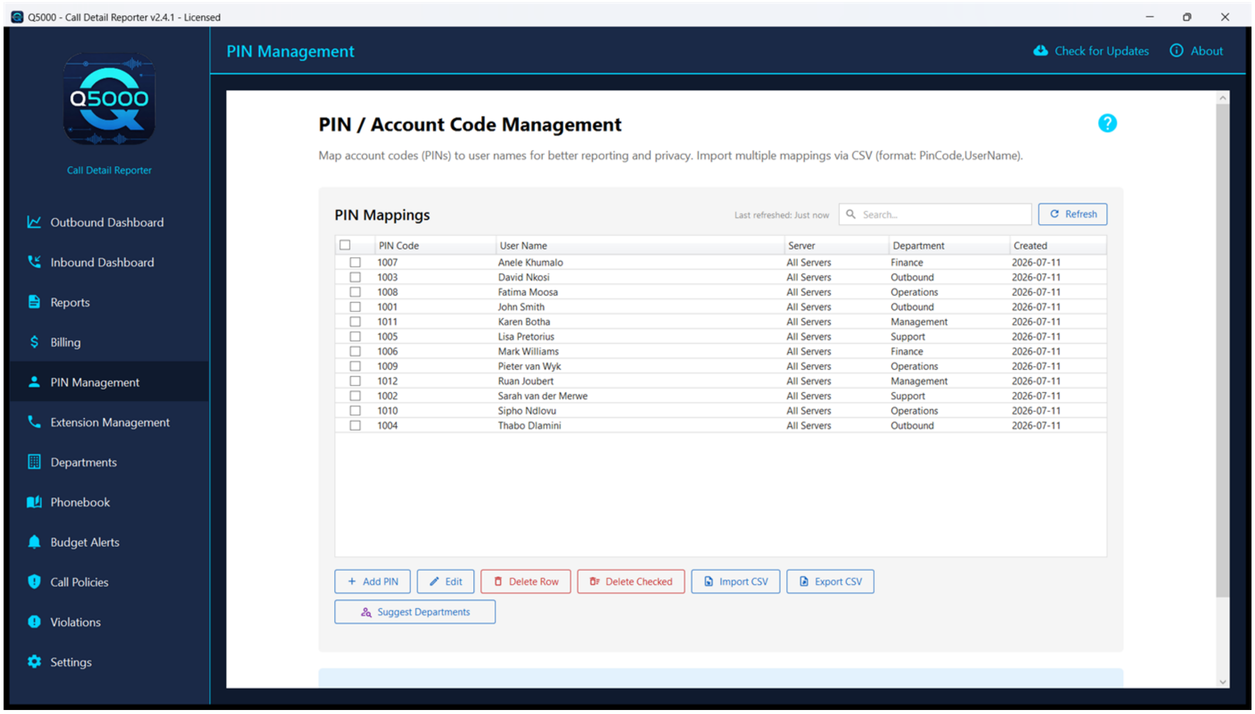
If you previously exported Excel just to get a tab the PDF didn't have, the PDF version now has it too. Both formats are now interchangeable for distribution.

5.6 Cost Recalculation on Upgrade (v2.0.5 - v2.0.7)

Local-call premium changes between versions are now applied to historic CDR rows automatically. On first launch after upgrade, if the upgrade includes a cost-rule change, the splash screen shows **"Recalculating call costs under current rates..."** and re-prices the **`local_cdr`** table in place. This runs even when auto-sync-on-startup is disabled, so the recalibration takes effect without user intervention. No action required from you.

6. PIN Management

Map PBX account codes to users and departments for accurate cost tracking.



PIN / Account Code Management with server and department assignment

Adding PINs:

1. Click **PIN Management** in navigation

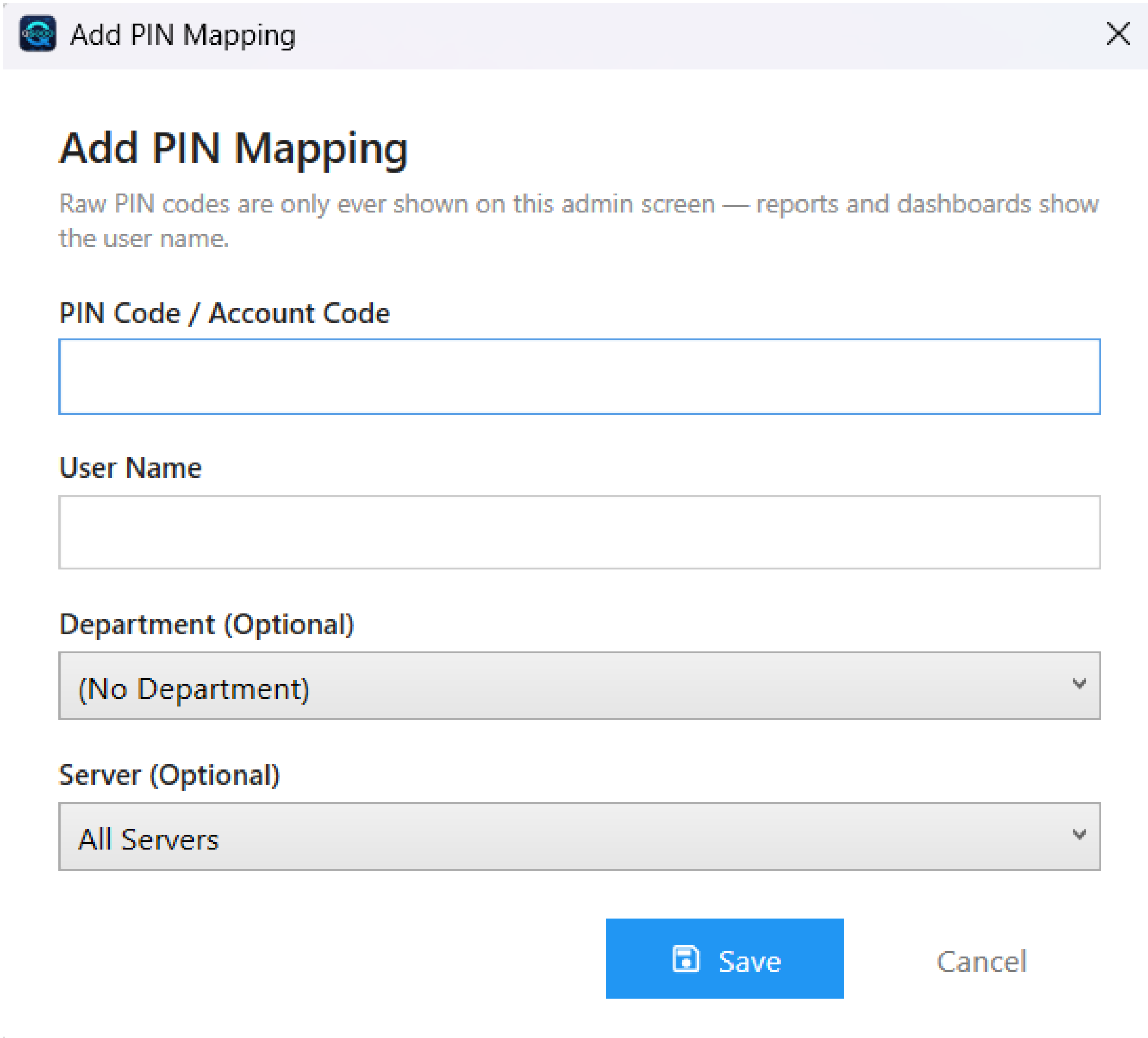
2. Click **+ Add** button

3. Enter PIN code and user name

4. Select department

5. Mark as active/inactive

6. Save



The Add PIN Mapping dialog

Bulk Import:

1. Click **Import** button

2. Download CSV template

3. Fill in PIN details (PIN code, User Name, Department)

4. Upload and import

5. Resolve any conflicts

Server Assignment Dialog (v1.9.0+)

When importing PINs via CSV, the **Server Assignment dialog** appears:

1. Select **target server** from dropdown (or "All Servers")

2. Enable **Skip Duplicates** checkbox if you want to skip existing PINs

3. Click **Import**

4. All imported PINs are assigned to the selected server

This allows you to manage PINs across multiple PBX systems.

CSV Format:

```
PIN,UserName,Department,IsActive
1001,John Smith,Sales,TRUE
1002,Jane Doe,Marketing,TRUE
1003,Bob Johnson,IT,FALSE
```

Names containing commas must be quoted (e.g. **`"Smith, John"`**) - handled correctly since v1.8.6.

Suggest Departments (v2.4.0+):

The **Suggest Departments** button matches user names against department names (in both directions) and offers the matches for review before applying:

• **Exact** matches are pre-ticked; **Likely** and **Possible** matches are listed unticked

• Ambiguous matches (a name that could belong to more than one department) are excluded

• Nothing is changed until you confirm the selection in the preview dialog

The same button exists in Extension Management. On that screen, after the free name matching, the app can additionally offer **AI analysis** for unmapped extensions that have recent call activity (see section 12).

CSV Round-Trip with Department and Server (v2.4.0+):

PIN CSV export now includes **Department** and **Server** columns, and import maps them back to existing departments/servers (unknown or ambiguous names are reported, never guessed). Legacy two-column files still import fine.

PIN Management Features:

• Search and filter PINs (bulk select/delete acts on visible rows only)

• Edit PIN details

• Deactivate obsolete PINs

• Export PIN list to CSV - because the file must contain the raw PIN codes for

re-import, the app first shows a security warning (v2.7.4+); store the file securely and delete it when no longer needed

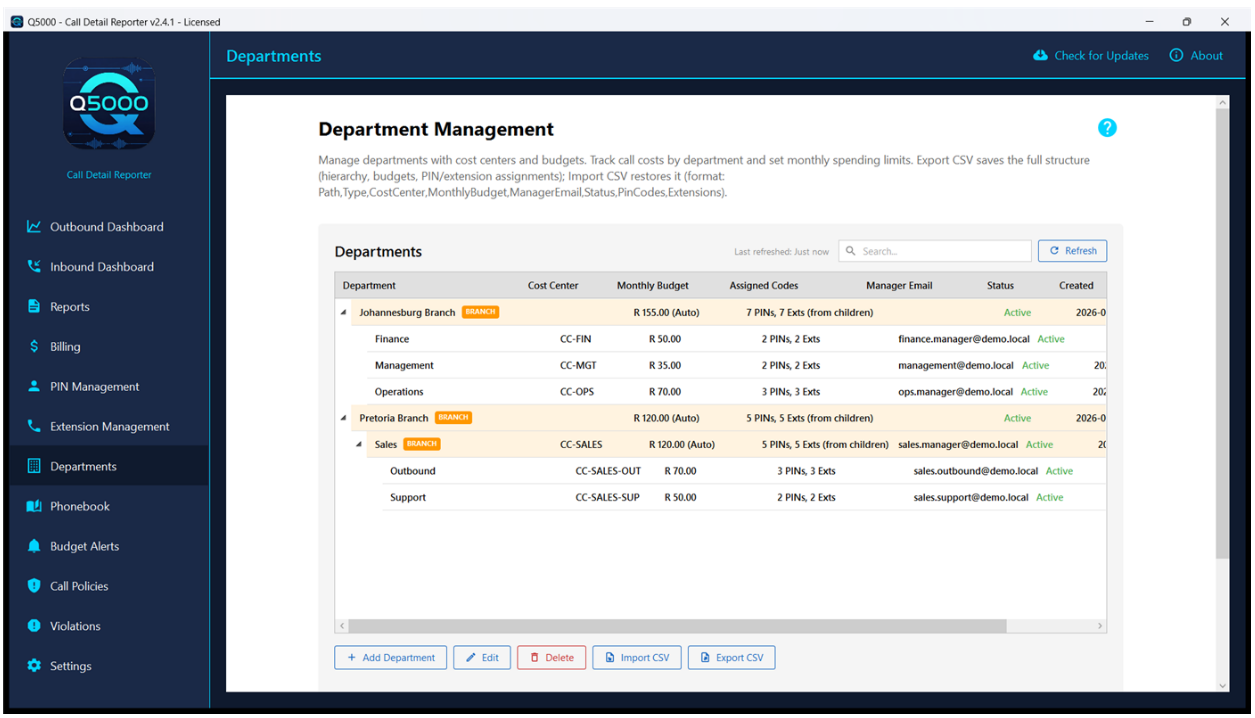
• View PIN usage statistics

• Refresh button with "Last refreshed" indicator

• **License Limit Meter -** Visual indicator of PIN count vs license limit

7. Departments

Organize users into departments and track budgets, spending, and hierarchies.



Department Management - N-level hierarchy with budgets, auto-rollup and assigned codes

Creating Departments:

1. Click **Departments** in navigation

2. Click **+ Add Department**

3. Enter name and cost center code

4. Set monthly budget (optional)

5. Enter manager email for alerts

6. Configure **parent department** (optional) to create hierarchy

7. Assign the people: tick their entries under **Assign PIN Codes** and **Assign Extension Numbers**

8. Save

Choosing the parent decides what kind of department you get. Leave **Parent Department** empty and you create a root-level **branch**: its budget is auto-calculated from its children and it cannot hold PIN or extension assignments directly. Pick any existing department as the parent and you create a child that *can* hold assignments and whose costs roll up to the branch. An information panel in the dialog states which of the two you are about to create.

Worked example: moving someone into a new department

A salesperson is promoted and needs their own department, with their calls moving off the sales budget:

1. **Departments -> + Add Department**. Name it (e.g. "Sales Management").

2. **Parent Department** -> pick the branch (e.g. "Pretoria Branch"). The blue panel confirms it is a child department that can hold assignments.

3. Fill in **Cost Center**, **Monthly Budget** and **Manager Email -** the budget drives the dashboard row and the alert thresholds; the manager email is where budget alerts are sent.

4. Under **Assign PIN Codes**, tick the person. Entries shown in **orange** are already assigned elsewhere, and the department they currently belong to is shown in brackets. PINs are masked here (assign by user name).

5. Under **Assign Extension Numbers**, tick their extension. You can tick as many as you like in one pass.

6. **Save**. Because both codes belonged to another department, Q5000 asks you to confirm each move ("... is currently assigned to 'Sales Outbound'. Do you want to move it?"). Reassignment is never silent.

You do not have to link them again in Extension Management or PIN Management. Assigning a PIN or extension inside the department dialog *is* the same action **-** both screens immediately show the new department in their Department column, and the next dashboard refresh moves the spend onto the new department's budget (and off the old one's).

N-Level Department Hierarchy (v1.9.1+)

Departments now support **unlimited depth parent/child nesting**:

• **Parent Selection -** When creating/editing a department, select a parent from dropdown (shows breadcrumb path)

• **Breadcrumb Paths** - All department dropdowns show hierarchy breadcrumbs (e.g. "Company -> Sales -> North Region")

• **Subtree Rollup** - Spending and PIN/extension counts automatically aggregate from child departments in reports

• **Include Sub-levels Checkbox** - In reports, toggle to include or exclude child department spending in totals

• **Move Children Dialog** - When deleting a parent department with children, a dialog offers to re-parent them to a different parent or the root

Department Features:

• **Hierarchical structure** - Parent/child relationships with unlimited depth

• **Per-parent name uniqueness** (v2.1.0+) **-** Creating "Sales" under Silverton AND "Sales" under Jetpark now succeeds. Uniqueness is enforced per sibling group rather than globally **-** useful for multi-site companies that have parallel team structures

• **Extensions in dept dialog sorted by extension number** (v2.1.0+) - The picker now sorts by extension number rather than user name, making it easier to locate systematic extension ranges

• **PIN codes are masked in the dept dialog picker** (v2.7.4+) **-** Assign PINs by user name; the dialable codes themselves display only in PIN Management

• **Budget tracking** - Automatic spend vs budget comparison (works for both PIN and extension assignments)

• **Manager assignments** - Email notifications for alerts

• **Spending summaries** - Daily/weekly/monthly totals with hierarchy rollup

• **Trend analysis** - Historical spending patterns

• **Child rollup** - Automatic aggregation from child departments

• **Multi-PBX support** - Extensions and PINs filtered per server (v1.8.4+)

• **Tree search** (v2.4.0+) **-** The search box filters the hierarchy while keeping each match's ancestors visible so you always see where a department sits

• **CSV round-trip** (v2.3.2+) - Export/import carries the full hierarchy plus PIN and extension assignments; budgets are locale-safe (comma-decimal Windows settings can no longer corrupt amounts)

Budget Tracking:

The system automatically:

• Tracks spending against budget for departments using PINs **or** extensions

• Rolls spending up the hierarchy - a parent department without its own budget alerts on the **sum of its children's budgets** (shown as "(Auto)" on screen) (v2.4.0+)

• Displays utilization percentage

• Generates alerts at thresholds (80%, 90%, 100%)

• Shows trend analysis and forecasts

• Sends email notifications to manager

• Counts calls the same way as the reports and dashboards, so budget figures always match report totals (v2.7.2+)

Review Budgets - right-size budgets from actual usage (v2.8.0+)

A budget that is set once and never revisited stops telling you anything. If a department is budgeted R1,500 but never spends more than R700, the 80% warning can never fire - there is no early warning left. If another department goes over budget every single month, its alerts become noise people learn to ignore. **Review Budgets** finds both cases in one pass.

Running it:

1. Click **Departments** in navigation

2. Click **Review Budgets**

3. The scan reads the last three complete calendar months of actual spend for every

department that carries a budget

What the review screen shows - one row per department that needs attention:

• What it actually spent in each of the three months

• Its **Average** and its **Busiest** month

• Its **Current Budget** and the **Suggested** replacement

• A plain-language verdict: *Budget too high*, *Budget too low*, or *No budget set*

Departments with their own extensions AND sub-departments (v2.8.2+): if such a department has no budget anywhere below it, the scan proposes one budget on the parent sized to the whole branch - budgets on its sub-departments alone could never cover the parent's own calls. If a sub-department already owns the budget, nothing written anywhere can cover the parent's own spend; the scan shows this as a *Spend not covered* advisory row (nothing to tick) suggesting you move those extensions into a sub-department of their own.

How the suggestion is worked out: the suggested figure is the higher of the three-month average plus 15% and the busiest month plus 10%, rounded up to the nearest R50. Sizing to the busy month rather than the average matters - a budget set just above the average would be breached by any normal busy month, so the alerts would fire constantly and mean nothing.

Example: a department spending R480, R555 and R720 over three months has an average of R585 and a busiest month of R720. The average route gives R673; the busy-month route gives R792. The higher wins and rounds up to **R800**. Against a R1,500 budget that is flagged *Budget too high*.

Applying the changes:

• Every listed department starts ticked - untick any you don't want to change

• The **Suggested** amount is editable; click it and type your own figure

• **Apply Selected** writes only the ticked rows; everything else is left exactly as it was

• Parent department totals ("(Auto)" figures) recalculate immediately

What is deliberately left out of the list:

• Departments already sized correctly - counted at the bottom of the screen but not

listed, so a R30 drift never becomes a chore. A change is only proposed when the gap is both more than 20% of the current budget and more than R100.

• Departments with no calls at all in the period - these are reported separately and

never given a R0 budget, which would put them into critical on their next call

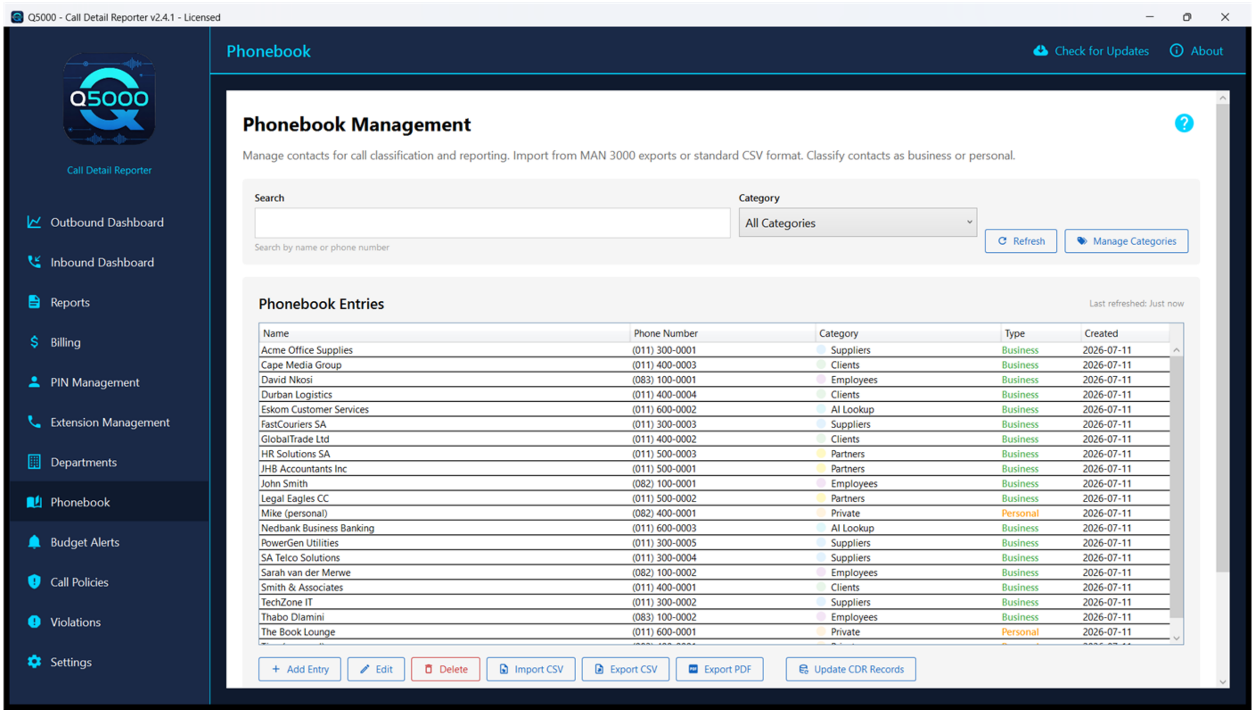
• Branch and top-level departments, whose budgets are always the sum of their children

(unless the branch has extensions of its own - see the v2.8.2 note above)

If the database is young: the scan uses however many complete months it has and says so on screen. The current, part-finished month is always excluded - counting it would drag every average down and under-budget everybody.

8. Phonebook

Maintain contact database for automatic call classification and visualization.



Phonebook Management with categories, business/personal types and colour coding

Example: identifying an unknown number, end to end

The quickest way to understand the Phonebook is to follow one unknown number all the way from the dashboard into a named, colour-coded contact.

1. **Spot the unknown number.** On the **Outbound Dashboard**, scroll down to **Recent Calls**. Most calls already show a company name in the Destination column (for example *TechZone IT*) - that is the Phonebook at work. A call that still shows a raw number, such as `0119900001`, is a contact Q5000 does not recognise yet.

2. **Identify it with AI.** In that call's **Actions** column, click the **AI brain** icon. Q5000 sends the number to the AI service, which searches the web and returns the business behind it - here, *MiWay*. (AI identification is part of the monthly subscription. Without a subscription, use the **magnifying-glass / Google Search** icon next to it to look the number up yourself, then add it by hand.)

3. **Save it.** The Add Phonebook Entry dialog opens pre-filled with the name (and a suggested category) from the AI. If the category you really want does not exist yet, select the built-in **AI Lookup** category and save - you will file it correctly in a moment.

4. **Create the category you need.** Open the **Phonebook**, click **Manage Categories**, and add a new category - for example *Insurance*. Pick a colour (for example teal), set the **Type** to *Business*, then **Add** and **Close**. The colour you choose here becomes the row colour wherever this contact appears.

5. **Find the AI results.** Set the **Category** filter at the top of the Phonebook to **AI Lookup**. Every number the AI has identified - one at a time or in a batch - lands in this holding category. Your job is to move each one into the category where it really belongs.

6. **Re-file the contact.** Click the *MiWay* entry, click **Edit**, and change its category from **AI Lookup** to **Insurance**. The separate **Type** field (Business or Personal) controls whether calls count as work or private for personal-call reporting and policy checks - leave a business such as MiWay on *Business*. Save.

7. **Apply it to your history.** Click **Update CDR Records**. This re-runs your existing call logs through the updated Phonebook so past reports gain the new names and categories, not just future calls.

8. **See the result.** Back on the Outbound Dashboard's Recent Calls, the same call now reads *MiWay*, shaded in the Insurance colour you chose, instead of the raw number.

> ***The "AI Lookup" category is a holding area.*** *Bulk AI lookups save every match under* ***AI Lookup*** *automatically, and single lookups can be saved there too - so you can find everything the AI identified in one place. Re-categorising each entry (step 6) is what makes your reports read cleanly.*

Adding Contacts:

1. Navigate to **Phonebook**

2. Click **+ Add Contact**

3. Enter name and phone number

4. Select category (Supplier, Employee, Client, Personal)

5. Mark as Business Call if applicable

6. Assign color for visual organization (v1.6.0+)

7. Save

Call Classification:

Calls are automatically classified:

• **Supplier/Client** -> Business (color-coded)

• **Personal** -> Personal (color-coded)

• **Employee** -> Internal (color-coded)

AI Phone Lookup:

1. Click the **AI brain icon** next to any unknown number (in the Phonebook, or in the Recent Calls list on either dashboard)

2. AI identifies the number type and business name

3. Save the result - the dialog is pre-filled with the AI's name and suggested category; pick **AI Lookup** if you want to file it later

4. Bulk lookup with the **Look Up All Unknown** button; every bulk match is saved under **AI Lookup** automatically

5. No subscription? Use the **magnifying-glass / Google Search** icon to look the number up manually instead

6. After re-categorising entries, click **Update CDR Records** so historical calls pick up the new names and categories

Bulk Import:

1. Click **Import** button

2. Download CSV template

3. Fill in contact details

4. Upload and import

5. Map colors to categories

Update-existing mode (v2.4.0+): when an imported number already exists in the phonebook, the import options dialog lets you choose whether to skip it (the old behaviour) or **update the existing entry** with the imported name/category.

Category Manager (v2.4.0+):

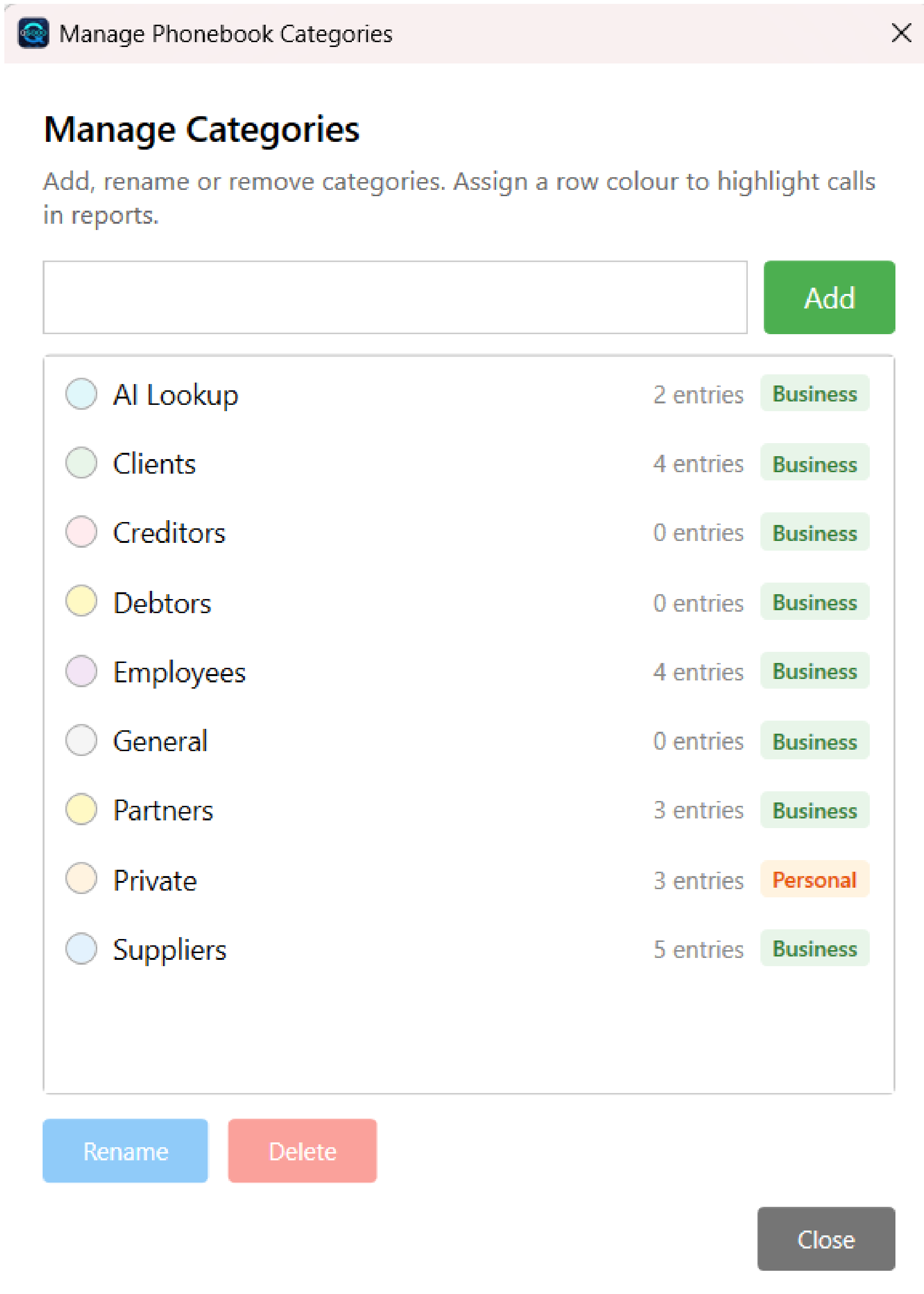
The category manager now shows **all categories in use**, not just the ones you created:

• Categories that exist only on imported entries appear as "unmanaged" chips

• Editing an unmanaged category adopts it into your managed list

• Renaming a category to a name that already exists offers to **merge** the entries

Category colors are shown as dots directly in the contact grid.



The Manage Categories dialog - entry counts, business/personal type and row colours

Phonebook Features:

• Search and filter contacts

• Filter by category with color display (filter preserved across reloads since v1.8.8)

• Edit contact details

• Export phonebook to CSV

• Auto-match numbers for call classification

• AI-powered unknown number identification (v1.8.0+)

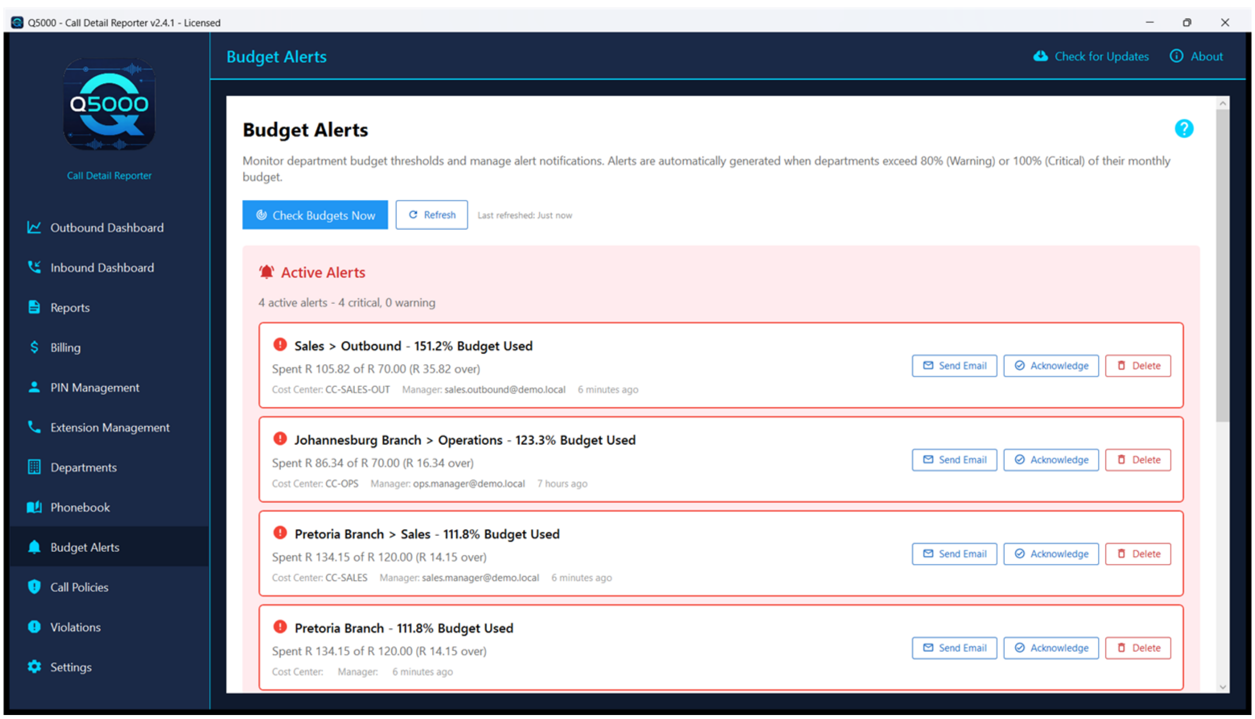
• AI pattern-detected personal numbers saved with "AI" category (v1.8.8+)

CSV Format:

```
Name,PhoneNumber,Category,IsBusiness
Acme Corp,555-1234,Supplier,TRUE
John Personal,555-5678,Personal,FALSE
```

9. Budget Alerts

Monitor department spending and receive notifications when thresholds are exceeded.



Budget Alerts - active alerts with budget usage, Send Email and Acknowledge actions

Alert Thresholds:

• **Warning:** 80% of budget (amber indicator)

• **Critical:** 100% of budget (red indicator)

• **Custom thresholds** per department

Managing Alerts:

• View all active alerts in **Alert Dashboard**

• See department, budget, spending, percentage used

• Click **Acknowledge** to mark as reviewed

• Receive email notifications if configured

• View alert history and trends - the history filters combine, so you can filter by a department **and** a date range at the same time (v2.4.0+)

• The "Show acknowledged" choice is remembered between sessions (v2.4.0+)

• Export alert reports

Alert Configuration:

1. Click **Budget Alerts** in navigation

2. View active alerts with status indicators

3. Configure alert thresholds per department

4. Enable/disable email notifications

5. Set manager email for notifications

Alert Dashboard Features:

• Real-time alert status

• Historical alert tracking

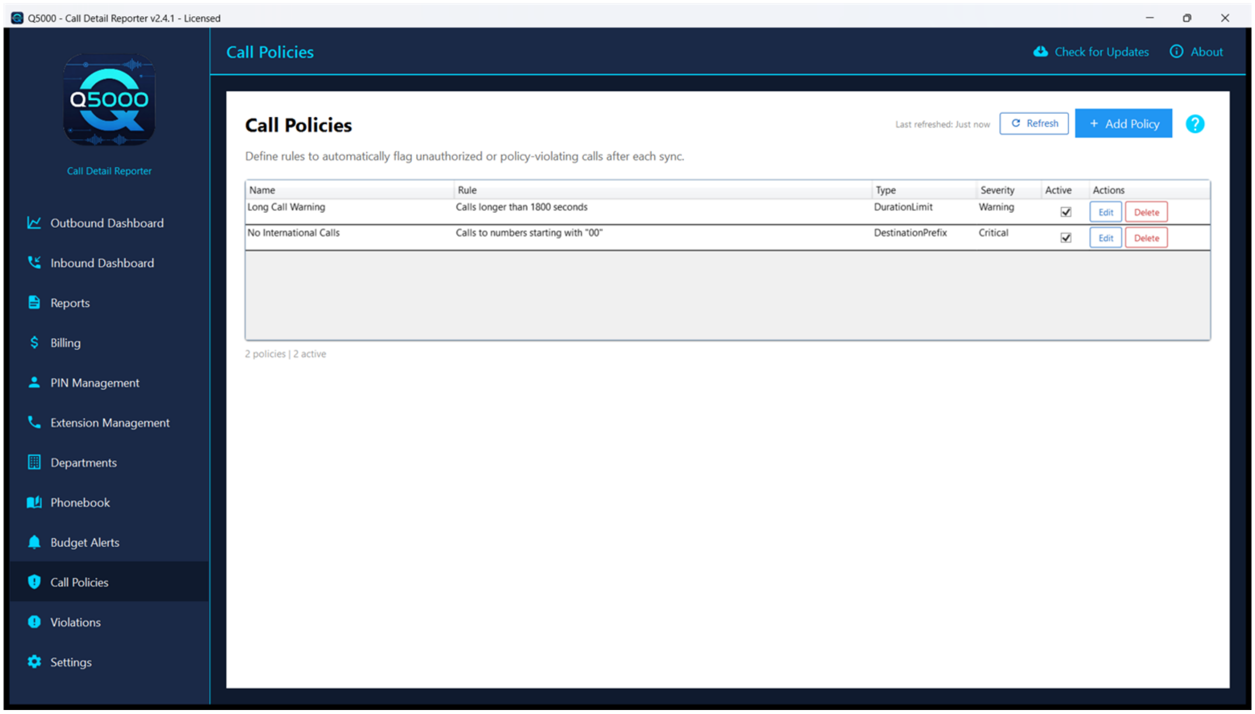
• Acknowledgement workflow

• Escalation rules

• Alert reports and statistics

10. Call Policies & Violations (v1.6.0+, enhanced v1.8.0+)

Define call policies and track compliance violations with AI-powered investigation.



Call Policies - rules with type, severity and one-click Active toggle

Creating Policies:

1. Click **Call Policies** in navigation

2. Click **+ Add Policy**

3. Enter policy name and description

4. Define rules (pattern matching, call type, duration, cost)

5. Set violation thresholds

6. Save

Policy Features:

• Pattern-based rules (regex/prefix matching)

• Call type filtering (business/personal/international)

• Duration thresholds

• Cost limits

• Time-based restrictions

• **Policy scope - "Applies To"** (v2.4.0+): each policy can apply to **All calls**, a specific **Department** (picked from the hierarchy), or a specific **Extension**. The rule summary shows the scope, and editing a policy preserves it. If a scoped department or extension is later deleted, the policy is deactivated rather than silently going global

• **One-click Active toggle** (v2.4.0+) - tick/untick Active directly in the policy grid

Violations Dashboard:

• **Policy Violations** view shows all detected violations

• **Pagination** - 50 violations per page with Previous/Next navigation

• **Sort & Filter** - By policy, department, violation type, date; the From-date and Show-acknowledged filters apply immediately, and your server/acknowledged choices are remembered (v2.4.0+)

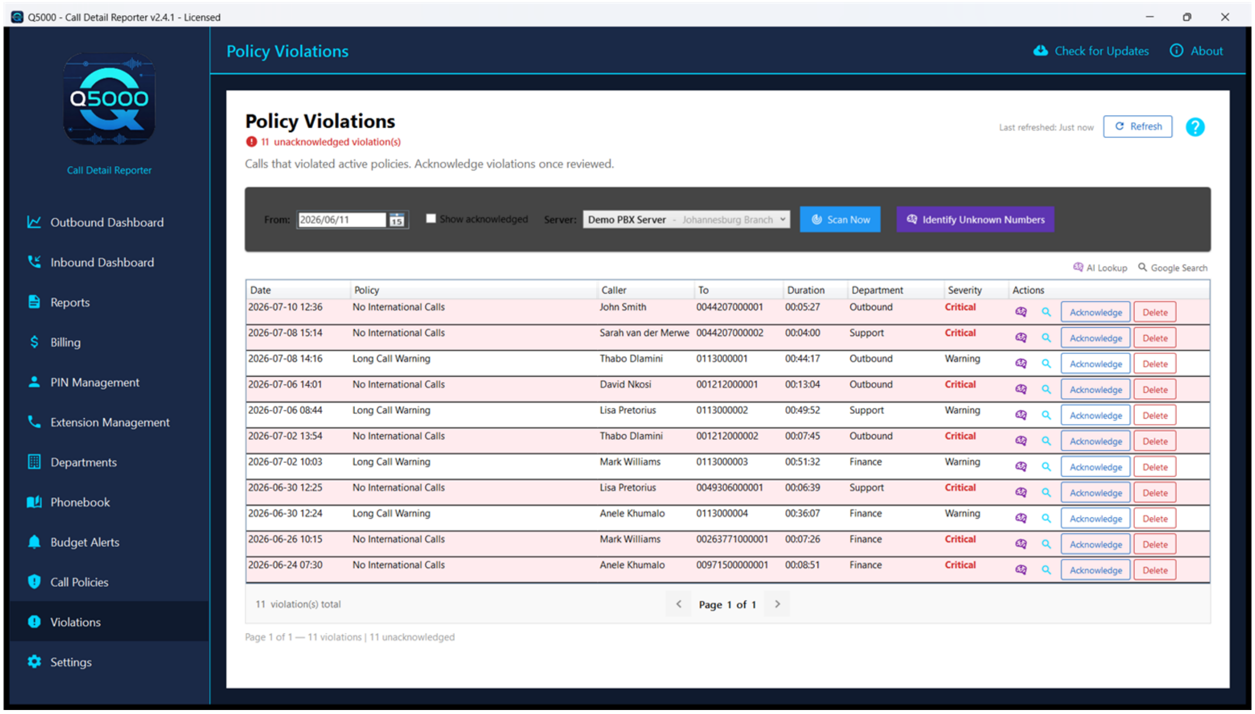
• **Scan Now** (v2.4.0+) - explicitly re-scans recent calls against active policies and reports how many new violations were found (previously bundled into Apply)

• **AI Investigation** - Click **Brain icon** on any violation for AI context

• **Google Search** - Click **Search icon** to look up number online

• **Add to Phonebook** - Save identified number from acknowledgement dialog (only offered when the number is not already in your phonebook)

• Deleting a violation asks for confirmation; violations whose policy was deleted show "(deleted policy)" instead of vanishing



Policy Violations - flagged calls with severity, AI investigation and acknowledgement

Violation Acknowledgement:

1. Click violation row to view details

2. Review policy rule that was violated

3. Click **Brain icon** for AI context on the caller/destination

4. Click **Acknowledge** to mark as reviewed

5. Optionally click **Add to Phonebook** to classify the number

Example Policies:

• "No personal calls over 30 minutes"

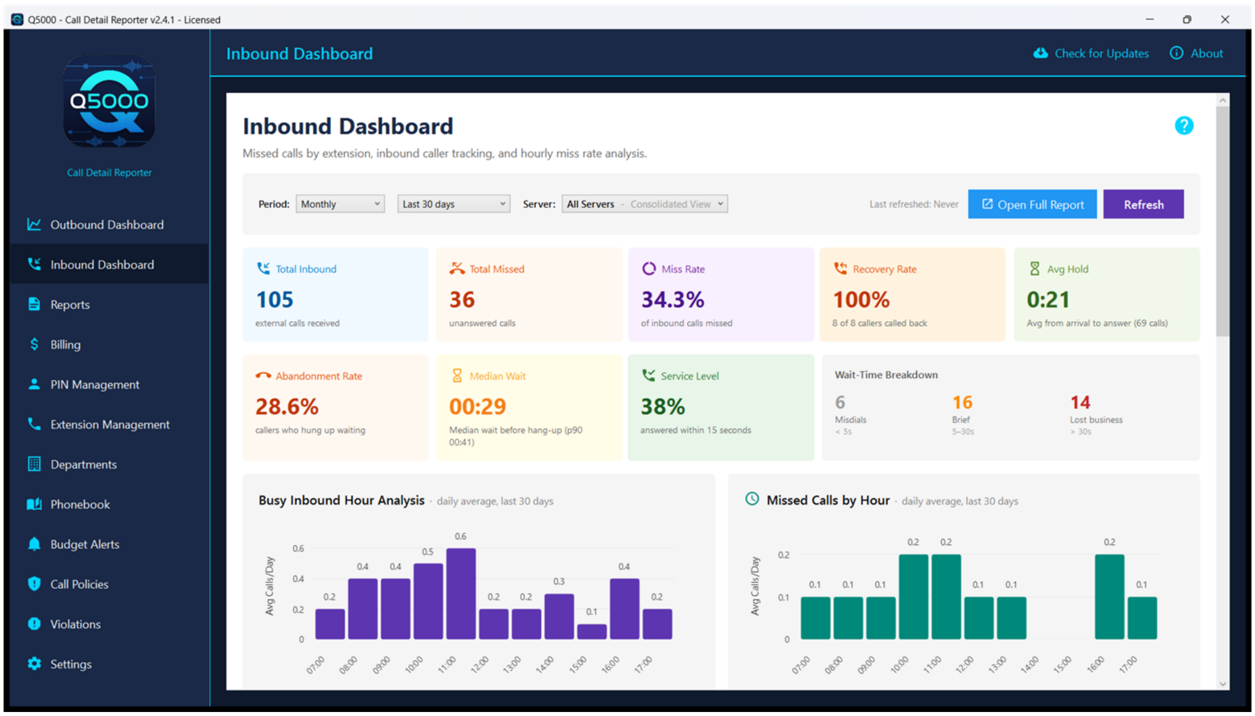
• "International calls must be pre-approved"

• "Premium rate calls limited to $10/day per user"

• "After-hours calls require business classification"

11. Inbound Dashboard (v1.6.0+, enhanced v1.9.1+, promoted to top-level nav v2.1.1)

Inbound Dashboard is now the second entry in the sidebar (directly below Outbound Dashboard). What used to live under Reports -> Inbound Analytics is a first-class view now. Specialized reporting for inbound calls, missed calls, and caller analysis with AI identification, SLA metrics, and AI Insights summary.



The Inbound Dashboard - miss rate, recovery, service level, abandonment and hourly analysis

Inbound Dashboard AI Insights Card (v2.1.1+):

A weekly-cached Gemini AI summary card appears below the hourly charts, above the Top Missed Extensions grid. Summarises in three actionable bullets:

• Miss rate and recovery rate

• Abandonment rate and median wait before hang-up (v2.3.0+)

• Average hold time

• Top missed extensions and top callers

Auto-refreshes on data load, with a 7-day cache. Manual Refresh button if you need a fresh read sooner. Hidden gracefully for license tiers without AI.

Inbound Dashboard Features:

• Dedicated inbound call reporting

• Missed call tracking with caller information

• Caller frequency analysis

• **Top Inbound Callers** grid with AI Brain and Google Search buttons

• Inbound vs Outbound comparison charts

• Peak time analysis for incoming calls

• Caller summaries and repeat caller identification

• **Busy Inbound Hour / Missed Calls by Hour charts** showing hourly patterns side by side

• **Recovery Rate tile** showing % of missed callers who called back and were answered (v1.9.1+)

• **Service Level tile** showing % of inbound calls answered within 15 seconds

• **Abandonment Rate tile** showing % of inbound callers who hung up while waiting (never reached a person), excluding misdials (v2.3.0+)

• **Median Wait tile** showing the median time callers waited before hanging up, with the 90th-percentile wait as detail (v2.3.0+)

• **Wait-Time Breakdown** splitting abandoned calls into misdials (under 5 seconds), brief waits (5-30 seconds), and lost business (over 30 seconds) (v2.3.0+)

• **Abandoned Calls by Hour chart** showing when callers are giving up, useful for spotting under-staffed periods (v2.3.0+)

> ***Abandonment vs. missed:*** *a missed call means nobody picked up; an abandoned call means the caller gave up waiting in a queue or ring group. Abandoned calls were always part of the missed total - this view breaks them out so you can see how long people wait before hanging up. Wait time is measured across the whole call, and very short hang-ups (under 5 seconds) are treated as misdials and left out of the rate.*

Inbound Reports:

1. Click **Inbound Dashboard** in the sidebar (second entry, directly under Outbound Dashboard)

2. Select date range

3. View summary tiles (total inbound, missed, **recovery rate, service level, abandonment rate, median wait**)

4. Review charts (busy inbound hour, missed calls by hour, **abandoned calls by hour**)

5. Review the **AI Insights** summary card below the charts (collapsible - your choice is remembered)

6. Click **Open Full Report** (toolbar or either grid header) for the full Inbound Analytics report; the **Refresh** button reloads the dashboard, and the toolbar shows when data was last refreshed

7. In the Top Inbound Callers grid the **Name** column is blank for numbers not yet in the Phonebook **-** use **Identify Unknown** or the AI/Google row buttons to name them

Top Inbound Callers Grid (v1.8.5+):

Each caller row has **Actions column** with:

• **AI Brain icon** - Identify that caller with Gemini AI

• **Google Search icon** - Search the number online

• **Add to Phonebook** - Save identified caller with classification

• **Bulk AI Identify** button to identify all unknown callers at once

Report Types:

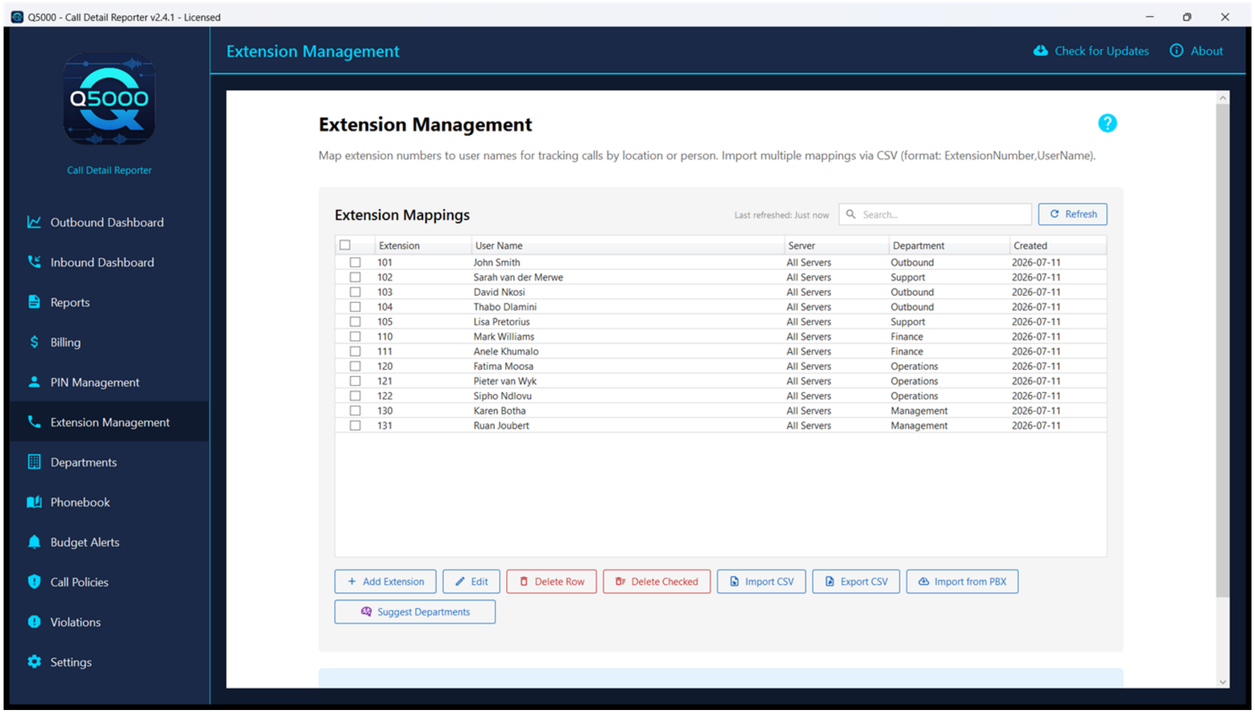
• **Inbound Summary** - Overview of incoming calls

• **Missed Calls** - Calls without answer with caller info (internal extensions filtered out in v1.8.5+)

• **Inbound vs Outbound** - Daily breakdown with comparison

12. Extension Management (v1.6.0+, enhanced v1.8.4+)

Manage PBX extensions and map to users/departments with multi-PBX support.



Extension Management - per-server mappings with Import from PBX and Suggest Departments

Extension CRUD:

1. Click **Extension Management** in navigation
2. Click **+ Add Extension**
3. Enter extension number and user
4. Select **server** (v1.8.4+) **-** Extensions now linked per-PBX, not global
5. Select department
6. Configure forwarding rules (optional)
7. Save

Multi-PBX Support (v1.8.4+):

- **Extensions per Server** - Each extension belongs to a specific PBX server
- **Server Column** - Extension Management grid shows which server
- **Server Filter** - Department dialog filters extensions/PINs by server
- **Bulk Import** - Extension import assigns to the selected server

Call Identifier Mode (v1.8.8+):

After each CDR sync, CDR Reporter automatically detects whether your PBX uses PINs, extensions, or a combination of both. This drives correct user grouping across all reports - including the Summary Report, Personal vs Business report, and User Activity report - without any manual configuration.

To view or override:

1. Go to **Settings**

2. Scroll to **Call Identifier Mode**

3. The auto-detected value is shown (e.g. "Extension Only", "PIN Only", "Mixed")

4. Use the dropdown to override if the auto-detection is incorrect

Available options:

• **Auto** - uses the value detected after the last sync

• **Extension Only** - all calls grouped by extension number

• **PIN Only** - all calls grouped by account code (PIN)

• **Mixed** - uses PIN when available, falls back to extension

How the mode shapes the per-user reports (v2.6.0+):

On PBXes where users dial a PIN to make outbound calls, the person who owns a call is identified by the PIN, not by the extension the call happened to leave from (only reception phones dial out directly on most sites). When the mode is **PIN Only** or **Mixed**, the Summary, User Activity and Call Detail (daily totals) reports present clearly separated sections:

• **Inbound by Extension** - incoming calls grouped by the extension that answered them.

• **Outbound by User** - outgoing (external / trunk) calls grouped by the PIN holder (reception's direct-dialled calls appear under their extension).

• **Internal by Extension** - calls that stayed inside the PBX, grouped by the extension that made them (see below).

This means a PIN-authorised call is always credited to the person who dialled it, and someone who both answers and dials appears in each section with only that direction's activity. On **Extension Only** sites (no PINs at all), reports keep the single combined per-user table, now with a separate **Internal** column.

Internal calls are counted separately (v2.6.1+): A call from one extension to another (e.g. 226 dialling 227), or to a feature code such as **`*8`**, never leaves the PBX and carries no cost. These are now reported as **Internal** rather than **Outbound**, so "Outbound" always means an external (trunk) call - the same meaning it has on the dashboard. The Summary report header shows a distinct **Internal** total next to Inbound and Outbound, and the three reconcile. The **Top Expensive / Outbound Spend by User** ranking lists external-spend calls only, so zero-cost internal calls no longer appear in it.

Auto-Detection:

• Automatically detects extensions from CDR data

• Suggests user mappings based on call patterns

• Conflict resolution wizard

• Bulk import from CDR

Suggest Departments (v2.1.2+, reworked v2.4.0):

The **Suggest Departments** button now runs in two stages:

Stage 1 - free name matching (no AI):

1. User names on extensions are cross-matched against department names (both directions)

2. A preview dialog lists the matches: **Exact** matches pre-ticked, **Likely** and **Possible** unticked, ambiguous names excluded

3. Tick the assignments you want and confirm - nothing changes without your confirmation

Stage 2 - optional AI analysis:

1. After the name matching, the app offers AI analysis for extensions that are still unmapped but have **recent call activity** (>= 3 calls in last 30 days)

2. The app enriches each extension with its top destination patterns and calls Gemini once

3. An info dialog shows AI's suggested department assignments ("calls a lot of suppliers -> probably Purchasing")

4. You assign manually - the AI is a triage aid, not an automatic action

The same Stage-1 name matching is available on the PIN Management screen.

Why it's useful:

• Unassigned extensions are typically forgotten cleanup work; this surfaces ones that are actually in use

• Destination-pattern-based suggestions ("calls a lot of suppliers -> probably Purchasing") are usually accurate enough to short-circuit guess-work

Extension Features:

• Extension search and filtering

• User and department assignment

• Call forwarding configuration

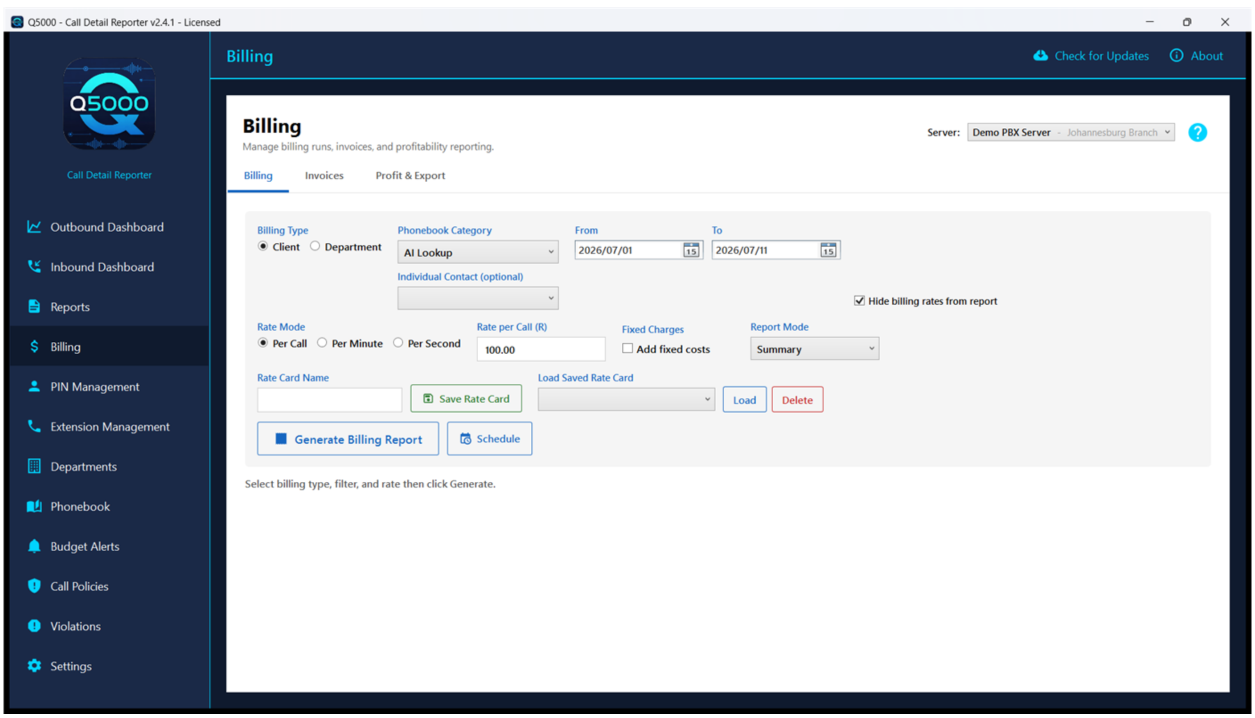
• Extension status tracking

• Bulk operations (import/export)

• **License Limit Meter** - Visual indicator of extension count vs license limit

13. Billing Module (v1.6.0+, enhanced v1.6.1-1.6.3)

Generate billing runs with rate cards, multi-currency support, and tax invoices.



The Billing view - billing type, rate mode, rate cards and scheduled jobs

13.1 Rate Cards & Multi-Currency

Rate Card Setup:

1. Click **Billing** in navigation

2. Click **+ Add Rate Card**

3. Enter rate card name and description

4. Select **currency** (R, $, EUR, GBP, A$, or Custom)

5. Add cost rules (cost per minute, destination patterns)

6. **Add fixed charges** (multiple named charges like "Setup Fee", "Monthly Subscription")

7. Save

Multi-Currency (v1.6.1+):

• Select currency when uploading rate file

• Live currency refresh available

• Reports and invoices display in selected currency

• Convert between currencies for comparison

13.2 Tax Invoicing (v1.6.3+)

Invoice Settings:

1. Go to Settings -> **Invoice Settings**

2. Configure company details (name, VAT number, address)

3. Set invoice footer text and terms

4. Enable tax calculation (VAT/GST %)

5. Invoice numbers auto-increment sequentially

Generating Invoices:

1. Click **Billing** in navigation

2. Select department and period

3. Click **Generate Invoices**

4. Review invoice details (Draft status)

5. Click **Issue** to finalize invoice

6. Print or email PDF

Invoice Status Workflow:

• **Draft** - Editable, not yet sent

• **Issued** - Finalized and sent to customer

• **Paid** - Payment received (mark with payment date)

• **Cancelled** - Invoice voided/reversed

Invoice safety (v2.4.0+): an invoice is only marked **Issued** (and its number consumed) after the PDF has actually been written to disk - a failed export no longer leaves an Issued invoice with no document. Generating a tax invoice with empty company name/VAT settings now warns first.

Bulk Invoice Print:

• Select multiple invoices

• Click **Print All** to print batch

• Batch print PDF generation

13.3 Multi-Server Billing (v1.6.2+)

• **Server selector** on Billing tab

• Generate billing runs per-server or all servers combined

• Server column in billing reports

• Support for different rate cards per PBX

13.4 Billing Reports

• Rate cards with effective dates

• Per-department/user billing

• Fixed charges and itemized costs

• Profit report with margin analysis

• Accounting export with timestamps

• Outstanding invoices summary tile

13.5 Generating Billing Runs

1. Select department (optional)

2. Choose period (month, custom range)

3. Select rate card

4. Click **Generate Billing**

5. Review line items (calls + fixed charges)

6. Export to Excel or PDF

7. (v1.6.3+) Generate and issue tax invoices

Billing accuracy (v2.7.2+): each phone call is billed exactly once, even on PBXes where staff dial a PIN before the number; internal extension-to-extension calls are never billed; and phonebook-based client matching recognises numbers in both national (0...) and international (27...) forms. Lines in the QuickBooks accounting export now always balance.

Multi-PBX billing and report accuracy (v2.7.4+): on systems with more than one PBX, each server's calls are billed to that server's own department mappings; PIN-filtered report exports show the same costs as the preview; call counts in Top Dialed Numbers, hourly charts and daily trends count each call once; and per-minute invoices show a correct rate description ("cost + markup") in the rate column.

13.6 Scheduled Billing Jobs (v2.4.0+)

Billing runs can be generated and emailed automatically each month:

1. In **Billing**, click **Scheduled Jobs** and add a job

2. Choose the **billing type** (Department / User / Client), an optional filter (a specific department or category), the **day of the month**, the rate card, and the recipient email

3. Jobs can be edited later and toggled Active/Inactive

While the app is running, due jobs fire in the background; if the app was closed on the scheduled day, the run catches up shortly after the next start. Each successful run emails the billing PDF via the Q5000 relay (**requires an activated license**) and appears in the billing history. A period with no billable calls sends a short notice email instead of an empty PDF.

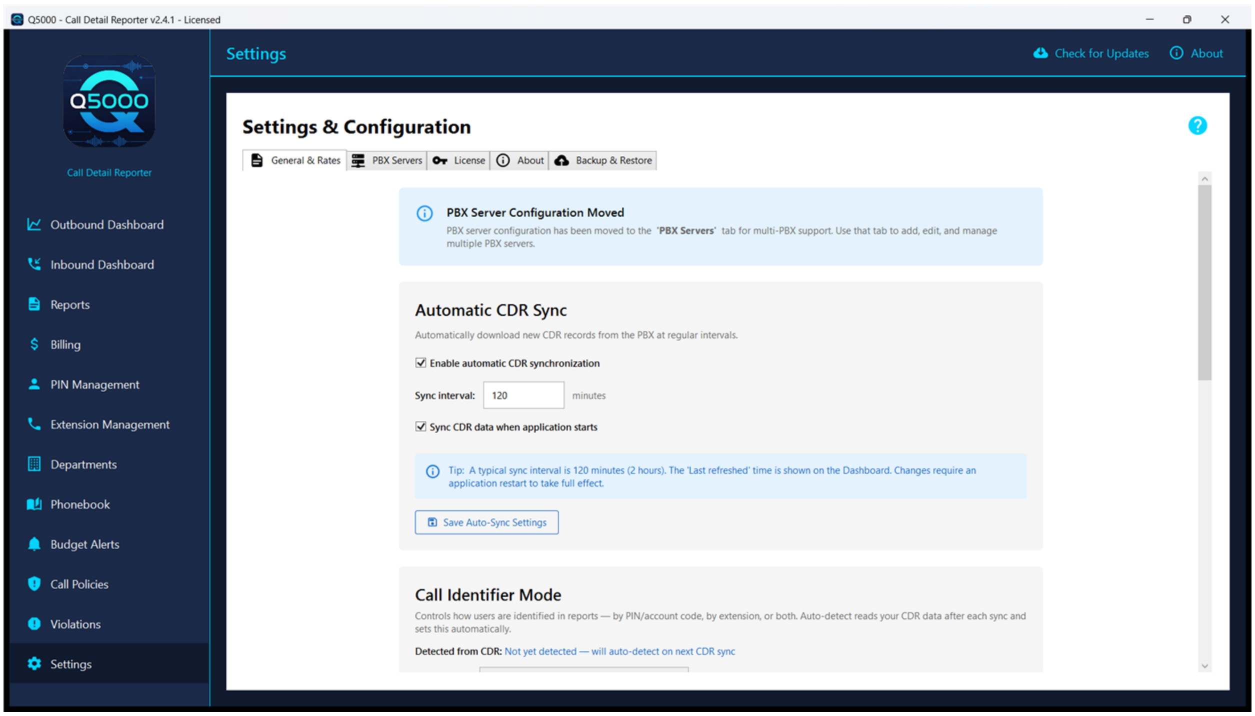
> *Upgrading from an older version: billing schedules created before v2.4.0 never actually ran (the scheduler was not active) and are deactivated on upgrade so they cannot surprise-fire - recreate the ones you want.*

Your Billing view choices (server, billing type, rate mode, and display options) are remembered between sessions.

14. Settings

Configure application, PBX connections, and preferences.

Settings is organized in tabs; the first tab is **General & Rates** (rate file, currency, and general options), followed by PBX Servers, Email, Invoice Settings, and About. The app remembers which tab you last viewed. On **General & Rates**, **Save Configuration** saves the tab's options and applies any changed Quick Rate Adjustment values to the loaded rate file. The **PBX Servers** grid shows the real per-server call record count, has a Refresh button with a "Last refreshed" indicator, and the **About** tab includes a one-click **Copy** button for your Machine ID (needed for license activation).



Settings - General & Rates tab with Automatic CDR Sync and Call Identifier Mode

Automatic CDR Sync (updated v2.7.2):

Q5000 can download new call records from your PBX on a schedule:

• **Enable automatic CDR synchronization -** turn scheduled sync on or off

• **Sync interval** - how often to sync, in minutes (a typical interval is 120 minutes)

• **Sync CDR data when application starts** - also run a sync at startup

• Click **Save Auto-Sync Settings** to apply

As of v2.7.2 the interval sync runs in the background whichever screen you are on - not just the dashboard - and saved changes to these settings take effect within a minute. No restart is needed.

PBX Connection:

• **Host** - PBX server IP or hostname

• **Port** - SSH port (default 22)

• **Username** - SSH username

• **Password** - Encrypted password

• **Test Connection** - Verify connectivity

• **Timezone** - PBX timezone for converting calldate to local time during sync (v1.9.0+)

CDR Database:

• **Host** - Database server address

• **Port** - MySQL port (default 3306)

• **Database** - CDR database name

• **Credentials** - Database user and password

• **Test Connection** - Verify database access

SSH Connection Error Banner (v2.0.1+)

If the PBX is unreachable at startup, the app displays an **amber warning banner** at the top of the window and redirects to **Settings -> PBX Servers**. Check your connection details and click **Test Connection** to verify.

Call Identifier Mode (v1.8.8+):

Displays the auto-detected call identifier strategy for your PBX. This value is updated automatically after each CDR sync.

• **Auto** - use the value detected from CDR data (recommended)

• **Extension Only** - group all calls by extension number

• **PIN Only** - group all calls by account code (PIN)

• **Mixed** - use PIN where available, fall back to extension

Change only if you need to override incorrect auto-detection. The correct setting ensures all reports show the right users and departments.

Start with Windows (v2.7.0+):

Under the **Startup** card you can have Q5000 open automatically each time you sign in to Windows.

• Tick **Start Q5000 automatically when Windows starts** and click **Save Startup Setting**.

• The option is off by default and applies only to your Windows sign-in - it does not change anything for other people who use the same computer, and no administrator rights are needed.

• When enabled, Q5000 opens by itself at login just as if you had started it yourself. Untick the box and save again to stop it starting automatically.

• Uninstalling Q5000 also removes the startup entry, so nothing is left behind (v2.7.1+).

Cost Rules:

Define cost calculation rules for different destination types:

• Pattern matching (regex or prefix)

• Cost per minute

• Priority/precedence

• Rule descriptions

• Category assignment (local, mobile, international, premium)

Email Configuration:

Secure Email Relay (v2.2.0+):

• Budget alerts and scheduled billing reports are delivered through the Q5000 secure email service. There is no SMTP setup to do.

• Email delivery requires an activated license. On a trial, email features are shown but cannot send until you activate.

• Open the Email screen to see delivery status and send a test email to confirm it works.

No credentials on your PC:

• Unlike earlier versions, no email password is stored on your computer or in the installation folder. Sending is handled entirely by the Q5000 service.

Preferences:

• Date format and timezone

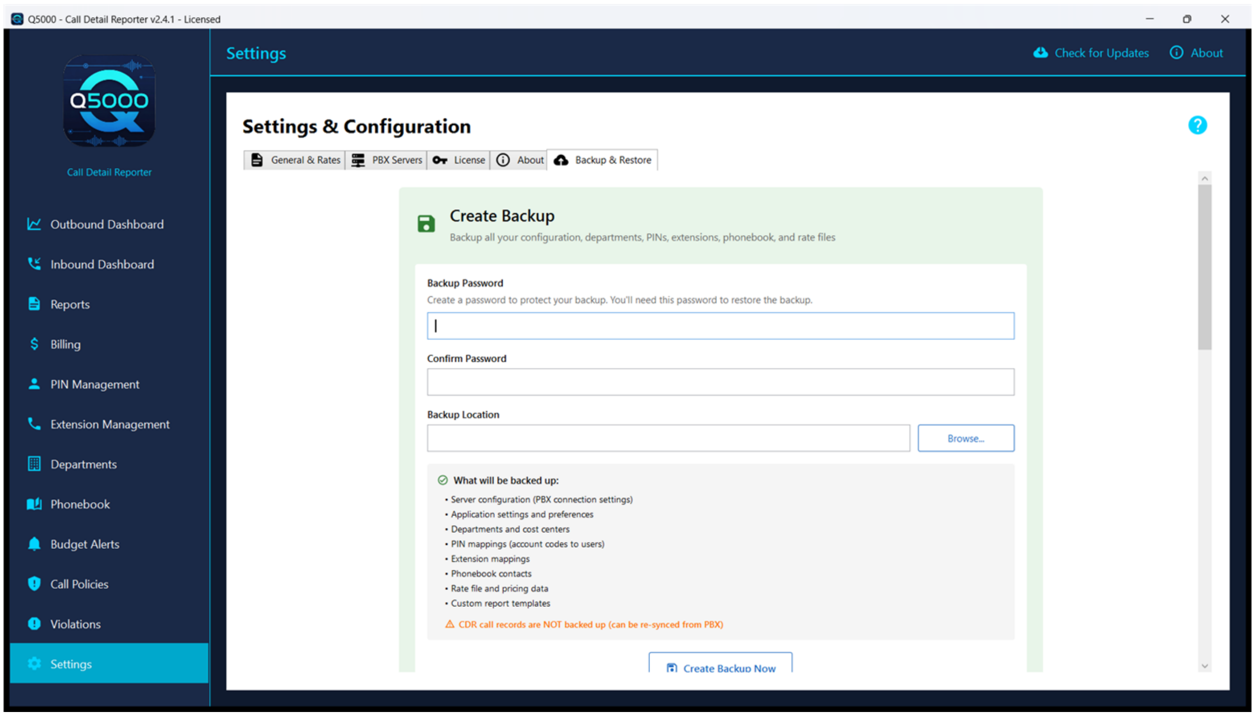
• Currency symbol

• Theme (dark/light)

• Auto-refresh interval

• Report defaults

Backup & Recovery:



Settings - Backup & Restore tab: password-protected backup of all configuration

• **Automated Backup** (v1.6.5+) - Scheduled backups are passwordless for you: they are protected automatically with a secret stored on your machine

• **Stronger backup protection** (v2.7.2+) - manual backups require a password of at least 12 characters, and the entire backup file is now encrypted (not just the stored server passwords). Backups made with older versions still restore normally

• **Bigger backup scope + safer restore** (v2.7.3+) - backups now also include billing history, rate cards, scheduled billing jobs, invoice settings and numbering, call policies and budget-alert history. Restoring onto a machine keeps your cached call history attached to its servers, and invoice numbering never goes backwards (so a restored machine can never re-issue an invoice number you already sent to a customer). A backup file that has been tampered with is refused

• **Transactional Restore** (v1.7.0+) - Safe restore with all table groups wrapped

• **cdr_schema.json Included** (v1.7.5+) - Database schema exported in backup

• **Factory Reset** (v1.7.0+) - Clear all configuration (button in Settings)

• Backup location (network share or local)

• Restore from backup option

• Schema v34 (v1.9.1+) with 6 composite indexes applied automatically on first launch for improved query performance

Auto-Update:

• **Automatic Check** - Checks for updates 30 seconds after startup (v1.9.2+)

• **Skip This Version** button - Suppresses update notifications for a specific version until a newer one is available (v1.9.2+)

• **Manual Check** - Always available via **About** button, regardless of skip setting

• **Update Dialog** - Shows new version info, release notes, and download button

• **Official source only** (v2.7.2+) - updates are downloaded only from the official q5000.co.za server; a download offered from anywhere else is rejected

License & Limits:

• **PIN License Meter** (v1.6.4+) - Visual progress bar of PIN count vs license limit

• **Extension License Meter** (v1.6.4+) - Visual progress bar of extension count vs license limit

• AI daily usage limits (Starter 50, Business 100, Professional unlimited)

• **License token refresh** (v2.1.1+) - Background validation on startup correctly triggers based on token age (5-day interval) rather than the broader validation flag, preventing unnecessary re-validation calls. Behaviour is automatic; no user action required.

• **Validate Now button** (v2.7.1+) - Settings -> License has a **Validate Now** button that re-checks your license with the server on demand

• **Automatic re-validation** (v2.7.1+) - if the offline grace period runs out (for example after restoring a backup, or after the app has been offline for a while), Q5000 re-validates your saved license automatically instead of asking you to type the key again

Contextual Help:

• **(?)** Help dialogs on all major views (v1.6.4+)

• Click ? icon to see help for that feature

• Feature-specific documentation inline

Demo Data:

• **Clear Demo Data** button (v1.7.0+) - Reset to fresh state when done trying demo

15. Troubleshooting

Connection Issues:

• Verify PBX is reachable (ping)

• Check SSH service running on PBX

• Verify port 22 not blocked by firewall

• Confirm credentials are correct

• Check PBX logs: **`/var/log/secure`**

No Data Displayed:

• Verify connections configured in Settings

• Check CDR table has records

• Verify date filter includes data

• Review application logs

Reports Not Generating:

• Check date range validity

• If a warning says the range exceeds the 500,000-call analysis limit, narrow the date range (v2.7.2+)

• Verify filters are correct

• Check disk space (500 MB minimum)

• Review application logs for errors

Extension-Only PBX - Missing Users in Reports:

If you have an extension-only PBX (no PINs) and reports show only one user or no user breakdown:

• Check **Settings -> Call Identifier Mode** - set to "Extension Only" or "Auto"

• Re-sync CDR data (Dashboard -> Refresh) to trigger auto-detection

• Verify extensions are mapped in Extension Management

Inbound Calls Show 0 with Ring Groups:

If inbound analytics show no calls when your PBX uses ring groups:

• This was a known issue fixed in v1.8.9+

• Root cause: two-stage DstChannel parsing for ring group detection

• Solution: Upgrade to v1.8.9 or later

• Upgrade also fixes inflated missed call counts using **`COUNT(DISTINCT uniqueid)`**

Performance Issues:

• Check PBX CDR table size (large tables may be slow)

• Reduce date range for queries

• Check network connectivity

• Increase application cache settings

AI Features Not Working:

• Verify Gemini API is accessible

• Check daily limit has not been exceeded (see AI Features section)

• Confirm license tier supports AI

• Check application logs for API errors