

TrellisCart

Complete Feature List

Version 1.0.0 · Self-Hosted PHP Ecommerce Platform

PHP 8.0+ · MySQL 5.7+ · Apache / LiteSpeed · Shared Hosting Compatible

98	36	7	12	0
PHP Files	Database Tables	Admin Sections	Account Pages	Monthly Fees

TrellisCart is a fully self-hosted ecommerce platform. You own every line of code, every byte of customer data, and every transaction — no SaaS subscriptions, no transaction fees, no lock-in.

1. Storefront

Everything your customers see and interact with. Built for fast load times, clean navigation, and a smooth path from browsing to purchase.



Homepage



Category Pages

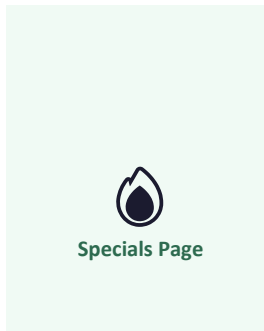


Product Pages



Search

- Hero banner section with configurable headline and CTA buttons
- Featured products grid — curated manually or via the Featured Products admin tool
- Specials & sale items section with strikethrough pricing
- Category tiles section for quick navigation to top-level categories
- Newsletter signup section with email capture
- Fully responsive — works on mobile, tablet, and desktop
- **Sidebar category tree** — hierarchical navigation showing parent, siblings, and subcategories
- **Chip filters** — All / Sale / New / In Stock filter buttons
- **Brand filter** — filter products by manufacturer in the sidebar
- **Max price filter** — filter by maximum price
- **Sort options** — Featured, Price Low–High, Price High–Low, Newest
- Pagination with configurable products-per-page (default 24)
- Star rating averages shown on product cards
- Active filter indicator on the chip that is selected
- Product image gallery with thumbnail navigation and main image swap
- Regular price, sale price with strikethrough, and % savings badge
- **Stock indicator** — "In Stock", "Low Stock (N remaining)", "Out of Stock"
- Product options / variant selection (color, size, material, etc.)
- Short and long description with full HTML support
- Manufacturer / brand display with link
- Add to Cart button with live cart count update (AJAX)
- Add to Wishlist button (session-based, no login required)
- **Star rating summary** — average and total review count
- Customer reviews section with individual star ratings and moderation status
- Review submission form for logged-in customers
- Related products section
- SEO meta title, description, and keywords per product
- Full-text search across product name, SKU, description, and brand name
- **Browse-all mode** — /catalog/search.php with no query shows full catalog
- Sort controls on search results (Featured, Price, Newest)
- Pagination on search results
- "No results" state with helpful messaging



- Search accessible from header on every page
- Dedicated /catalog/specials.php page listing all sale items
- Pulls from both the Specials table (timed sales) and products with sale_price set
- Seasonal sale banner displayed at the top of the page
- Renders using the same product card grid as category pages

2. Shopping Cart



Cart Features



Coupon System

- Persistent session-based cart — survives page navigation and browser back
 - AJAX add-to-cart — no page reload, cart count updates instantly in header
 - Quantity update inline — increment/decrement or type a number
 - Remove individual items or clear the entire cart
 - Product image, name, SKU, options, unit price, and line total displayed per row
 - Real-time subtotal update when quantities change
 - **Save Cart for Later** — named saved carts stored in the database (30-day retention)
 - **Restore saved cart** — one click to reload any saved cart into the active session
 - Coupon code application with AJAX — instant discount display
 - Free shipping eligibility message (e.g. "Add \$X more for free shipping")
 - Order summary sidebar: subtotal, discount, shipping, tax, grand total
 - Checkout button and Guest Checkout path
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- **Percent Off** coupons — e.g. 20% off the subtotal
 - **Fixed Amount** coupons — e.g. \$10 off
 - **Free Shipping** coupons — waives shipping charge regardless of threshold
 - Optional minimum order amount requirement per coupon
 - Optional max uses cap (unlimited by default)
 - Optional start and end date for time-limited promotions
 - Usage counter tracked in real time — visible in admin
 - AJAX coupon validation at cart page — instant feedback without page reload
 - Coupon code stored with order record for reporting

3. Checkout



Checkout Flow



Payment Methods

- Single-page checkout — contact info, shipping address, shipping method, payment
 - **Guest checkout** — no account required (configurable on/off in admin)
 - Logged-in customers auto-fill from their default saved address
 - Shipping method selection — Standard, Expedited, Overnight shown with rates
 - Free shipping automatically applied when order meets threshold
 - Coupon discount shown in order summary before confirmation
 - Tax calculated and displayed before payment
 - Order grand total confirmed before payment submission
 - Order notes / special instructions field
 - Post-order confirmation page with order number and summary
 - Stock quantity decremented atomically at order placement
 - Coupon uses count incremented at order placement
 - Session cart cleared after successful order
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- **Stripe** — publishable and secret key configuration, card processing
 - **PayPal** — PayPal business email configuration
 - **Bank Transfer / Check** — with configurable custom instructions shown to customer
 - **Cash on Delivery** — with configurable instructions, for local/pickup orders
 - Payment method configuration via admin (enable/disable each individually)
 - Payment method label and reference stored with every order

4. Customer Accounts



Account Portal



Registration & Auth

- **Dashboard** — order count, total spent, saved cart count, recent orders at a glance
 - **Order History** — full paginated list of all past orders with status badges
 - **Order Detail** — items, prices, shipping address, tracking number, status timeline, update history
 - **Printable invoice** — customer-facing print view from order detail page
 - **Saved Carts** — list of all saved carts with item count, total, and one-click restore
 - **Wishlist** — add/remove products, move to cart, session-based (no login required for adding)
 - **Address Book** — multiple saved addresses, default address setting, full CRUD
 - **Profile Settings** — name, phone, newsletter subscription preference
 - **Change Password** — current password verification before update
 - Account sidebar with persistent navigation across all account pages
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- Customer registration with first name, last name, email, password
 - Newsletter subscription opt-in on registration
 - Argon2 password hashing (cost factor 12) — never stored in plain text
 - Login with email and password, session-based authentication
 - Post-login redirect — sent back to the page they were trying to reach
 - Logout clears session cleanly
 - Password reset via email (SMTP required)
 - Guest checkout — no account required
 - Customer groups — Standard, VIP, Wholesale (assignable by admin)

5. Admin Panel

A full-featured management interface accessible at `/admin/`. Role-based access controls limit what each admin user can see and do.



Dashboard

- Today's revenue and order count
- Pending orders count with quick-access link
- Total active products count
- Low stock items count with direct link to report
- Saved carts count and total recoverable value
- Recent orders table — last 10 orders with status, customer, total
- Saved carts recovery panel — view all unsaved carts
- Low stock products list — all items at or below their alert threshold
- Quick action links: Add Product, View Store, Saved Carts



Product Management

- **Product list** with search, category filter, status filter, and pagination
- Bulk actions — activate, deactivate, feature, unfeature, delete
- **Add/Edit product** — full form with all fields: name, SKU, price, sale price, cost price
- Stock quantity, low stock alert threshold, track stock toggle
- Weight (lbs), dimensions (length × width × height)
- Short description and full HTML description
- Product image upload with preview
- Category assignment (multiple categories, primary category)
- Manufacturer / brand assignment
- Tax class assignment
- Sort order for manual category position
- SEO meta title, meta description, keywords per product
- Active toggle, Featured toggle, New Arrivals toggle
- Available date (for pre-orders)
- External URL (for affiliate or offsite products)



Categories

- Unlimited category depth — subcategories nest infinitely
- Category tree rendered with visual indentation in admin
- Category name, URL slug (auto-generated, editable), description
- Parent category selector for nested categories
- Sort order, active toggle, featured toggle
- SEO meta title and meta description per category
- Product count shown per category in admin list
- Subcategory count shown per category



Orders

- **Orders list** — search by name/email/ID, filter by status, paginated
- **Order detail page** — full customer info, shipping/billing addresses, item list, totals breakdown
- **Order status timeline** — Pending → Processing → Shipped → Delivered progress bar
- **Update order** — change status, add tracking number, add admin/customer note, notify customer
- **Order history log** — every status change and note timestamped at the bottom of the order
- **Printable invoice** — professional PDF-ready layout with all order details
- **Printable packing slip** — with item checkboxes, quantities, SKUs, tracking, sign-off lines
- **Saved carts recovery** — view all customer saved carts, send recovery nudge email
- Payment method and transaction reference recorded per order
- Customer notes displayed prominently for fulfillment



Customers

- Customer list with search by name or email, filter by group
- Customer stats per row: order count, lifetime spend
- Customer group filter (Standard, VIP, Wholesale)
- Export customer list to CSV
- **Customer detail page** — lifetime stats (orders, spend, member since)
- Edit customer: name, phone, group, password reset
- Enable / disable customer account
- Full order history on customer profile
- Saved carts visible on customer profile
- Address book shown on customer profile
- Newsletter subscription status and toggle

6. Sales & Promotions Tools



Coupons

- Percent Off, Fixed Amount, and Free Shipping coupon types
- Coupon code (uppercase, alphanumeric + hyphens)
- Optional minimum order amount
- Optional maximum uses cap
- Optional start and end dates
- Active/inactive toggle for instant enabling and disabling
- Usage counter shown in admin list
- Coupon code stored with each order for reporting



Specials / Sale Pricing

- Assign a sale price to any product with optional date range
- Sale starts/ends automatically based on configured dates
- Sale price stored on product record for persistent sale display
- Specials list in admin shows original price, sale price, and % discount
- Remove a special — restores regular pricing immediately



Featured Products

- Visually manage which products appear in the homepage featured grid
- Add any active product to featured with a single click
- Remove from featured without affecting the product itself
- Also manageable directly from the product edit page
- Sort order respects the product-level sort_order field



Manufacturers / Brands

- Create and manage brand names and optional website URLs
- Brand description
- Sort order for sidebar display order
- Active/inactive toggle
- Product count per brand shown in admin list
- Brand filter available on category pages for customers



Product Reviews

- Customer review submission with 1–5 star rating, title, and body
- Reviewer name auto-populated from account (first name + last initial)
- Reviews held in Pending state until approved by admin
- Admin review moderation: Approve, Unpublish, Delete
- Filter reviews by Pending, Approved, or All in admin
- Approved reviews shown publicly on product pages with average and count

7. Reports



Sales Report



Low Stock Report



Activity Log

- Configurable date range — Last 7 days, 30 days, 90 days, last year
 - Revenue total, order count, average order value, new customers — all for selected period
 - Daily sales breakdown table — date, order count, revenue per day
 - Top 10 products by revenue — name, SKU, units sold, total revenue
 - CSV export for the selected period
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- Separate panels for **Out of Stock** (qty = 0) and **Low Stock** (qty ≤ alert threshold)
 - Summary stat cards: out of stock count, low stock count, total alerts
 - Per-product: name, brand, SKU, category, current stock, alert threshold
 - Direct "Restock" / "Update Stock" link to the product edit page
 - CSV export of the full report
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- Every admin action recorded: product saves, order updates, config changes, logins
 - Log entries include admin username, action type, description, timestamp, IP address
 - Paginated — shows 50 entries per page with navigation
 - Accessible to admin and superadmin roles only

8. Store Configuration



General Settings

- Store name, store owner, email address, tagline
- Default country, default currency, currency symbol
- Timezone (full PHP timezone string support)
- Products per page (storefront pagination)
- New product badge expiry (days)



Shipping Settings

- Standard Shipping — flat rate, enable/disable, displayed ETA (5–7 business days)
- Expedited Shipping — flat rate, enable/disable, displayed ETA (2–3 business days)
- Overnight Shipping — flat rate, enable/disable, displayed ETA (next business day)
- Free shipping threshold — orders over this amount qualify automatically
- Weight unit — Pounds (lbs) or Kilograms (kg)



Tax Settings

- Global flat tax rate — one-field setup for simple single-rate stores
- Zone-based tax rates — multiple rates by tax class and zone, with priority stacking
- Tax class support — Taxable, Non-Taxable, Shipping, etc.
- Tax rate and amount shown at checkout and on invoices
- Set rate to 0 to disable all tax collection



Payment Settings

- Stripe — enable/disable, publishable key, secret key
- PayPal — enable/disable, business email
- Bank Transfer / Check — enable/disable, custom instructions shown to customer
- Cash on Delivery — enable/disable, custom instructions
- Each method toggled independently — show only the methods you accept



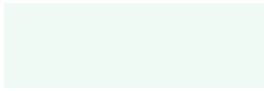
Email / SMTP

- From name and from email address for all outgoing emails
- SMTP host, port, username, password configuration
- SMTP ensures reliable delivery through your email provider (Gmail, SendGrid, Mailgun, etc.)
- Falls back to PHP mail() if SMTP not configured



SEO Settings

- Default meta title and meta description for the store
- Per-product meta title, description, and keywords
- Per-category meta title and description
- SEO-friendly URL rewriting via .htaccess — /products/slug-name, /category/slug-name



- Auto-generated URL slugs from product and category names (editable)

9. Content Management



Store Pages



Banners

- Full CRUD for static store pages (About Us, Shipping Policy, Privacy Policy, Returns, etc.)
- HTML content editor with p, ul, ol, strong, em, a, img tag support
- SEO meta title and description per page
- Option to show page link in storefront header navigation
- Option to show page link in storefront footer
- Sort order for controlling nav position
- Active/inactive toggle
- Pages served at /page.php?slug=page-name with clean URL rewriting
- Position options: Home Top, Home Middle, Category Pages, Sidebar, Checkout Page
- Image upload with preview in admin
- Link URL for clickable banners
- Optional HTML overlay text for animated or promotional banners
- Optional start and end dates for scheduled campaigns
- Sort order within position
- Active/inactive toggle
- Click count tracked per banner in the admin list

10. Admin System & Roles



Admin Users

- Three role levels: **Staff**, **Admin**, **Super Admin**
- Staff — order processing and customer service access
- Admin — full access except adding/removing admin users
- Super Admin — complete access including user management and system settings
- Separate username and email per admin
- Argon2 hashed passwords with cost factor 12
- Minimum 12-character password enforcement on creation
- Last login timestamp tracked per user
- Active/inactive toggle — disable an account without deleting it
- Admin cannot delete their own account



Admin Account Page

- Personal profile — first name, last name, username
- Change password with current password verification
- Role badge displayed on account page
- Recent personal activity log — last 15 actions by this admin
- Member since and last login timestamps



Maintenance Mode

- Enable maintenance mode by creating a maintenance.flag file in /storage/
- Storefront redirects to branded maintenance page when flag is active
- Admin panel remains accessible during maintenance
- Public-facing assets (CSS) still served — branded maintenance page, not a blank error
- Upgrade Center enables maintenance mode automatically before running upgrades

11. Installer & Upgrade System



Web Installer



Upgrade Center

- 5-step browser-based installer — no SSH or command line needed
- **Step 1: Requirements check** — PHP version, PDO, cURL, GD/Imagick, OpenSSL, mbstring, writable directories
- **Step 2: Database** — test connection button (AJAX), Next button verifies before advancing
- **Step 3: Store info** — name, email, URL, currency, timezone
- **Step 4: Admin account** — animated install log with progress bar, Argon2 password hashing
- **Step 5: Complete** — links to storefront and admin panel with security reminder
- Quote-aware SQL splitter handles multi-row INSERT statements correctly
- INSERT IGNORE used throughout schema to prevent errors on re-runs
- Table existence verification before attempting configuration UPDATES
- Writes includes/config.php with DB credentials and generated SECRET_KEY
- **Create backup** — ZIP of all files + full MySQL database dump before any upgrade
- Backup stored in /storage/backups/ with timestamped filename
- Last 5 backups listed with download links
- **Run migrations** — applies SQL migration files from /install/migrations/ in version order
- **Maintenance mode** — automatically enabled during upgrade, disabled after
- Cache cleared after successful upgrade
- Version file updated automatically
- **Rollback** — restores from a previous backup ZIP including database
- Upgrade run history logged in tc_upgrades table

12. Zen-Cart Importer



Data Import

- Connects directly to a live Zen-Cart database using provided credentials
- Imports **products** — maps products_id → zencart_id, products_model → sku, products_weight → weight_lbs
- Imports **categories** — full tree with parent-child relationships preserved
- Imports **manufacturers** — brand names and URLs
- Imports **customers** — name, email, addresses (passwords not transferred — bcrypt incompatible)
- Imports **orders** — full order records with line items, totals, and status
- Imports **reviews** — with star ratings and text
- Imports **coupons** — promo codes and discount values
- Uses INSERT IGNORE throughout — safe to run multiple times without duplicating data
- Comprehensive import log stored in tc_import_log with per-entity counts
- **5-phase progress UI** — animated admin interface shows import progress in real time

13. Security

Built-in Security

TrellisCart is engineered with a security-first architecture, implementing modern defensive coding practices and industry-standard protections at every layer of the application. From authentication to data handling, every component is designed to reduce attack surface and protect both store owners and their customers.

Authentication & Password Security

- Argon2id password hashing — all customer and admin passwords are secured using a memory-hard hashing algorithm with configurable cost parameters, designed to resist brute-force, GPU, and ASIC-based attacks
- Passwords are never stored in plain text under any circumstance
- Minimum password requirements enforced (12-character minimum for admin accounts)
- Secure password change flow — current password verification required before updates
- Password reset via secure email token system (SMTP required)

Application Security Controls

- SQL Injection Prevention — all database queries use PDO prepared statements with emulation disabled
- Cross-Site Scripting (XSS) Protection — all dynamic output is HTML-escaped
- Cross-Site Request Forgery (CSRF) Protection — every form includes a token verified on POST
- Input Sanitization — `tc_sanitize()` enforces clean input handling
- Strict Error Handling — production-safe errors; debug-only stack traces

Session & Authentication Hardening

- Secure session cookies (HTTPOnly, SameSite=Lax)

- Session regeneration on login
- Automatic session cleanup on logout
- Controlled session-based authentication lifecycle

Server & Infrastructure Protection

- Security headers enforced (X-Content-Type-Options, X-Frame-Options, X-XSS-Protection, Referrer-Policy)
- Sensitive directories blocked from direct access
- Critical file types blocked (.sql, .log, .env, .key, .pem, .bak)
- Directory listing disabled
- Compatible with secure shared hosting environments

Access Control & Administrative Security

- Role-based access control (Staff, Admin, Super Admin)
- Permission validation on all admin routes
- Admin protections (unique accounts, disable without delete, cannot self-delete)
- Full activity logging with IP tracking

Monitoring, Logging & Audit Trail

- Comprehensive admin activity logging
- IP tracking for admin actions
- Timestamped audit records
- Paginated log system

Secure Development Architecture

- Minimal attack surface (no unnecessary frameworks)
- Controlled plugin integration points
- Safe database helper layer
- Configuration isolation where applicable

Security Philosophy

TrellisCart follows a defense-in-depth strategy, combining multiple

layers of protection to mitigate risk and align with modern security best practices.

Final Note

No system is immune to emerging threats. TrellisCart is built to minimize risk, reduce exposure, and respond effectively while giving store owners full control.



Built-in Security

- **SQL injection prevention** — all queries use PDO prepared statements with emulate prepares disabled
- **XSS prevention** — all output HTML-escaped via e() helper throughout every template
- **CSRF protection** — every form includes a token; every POST handler verifies it
- **Argon2 passwords** — all customer and admin passwords hashed with cost factor 12
- **Session hardening** — httponly cookies, strict mode, SameSite=Lax, session regeneration on login
- **Apache security headers** — X-Content-Type-Options, X-Frame-Options SAMEORIGIN, X-XSS-Protection, Referrer-Policy, Server header removed
- **Directory protection** — includes/, storage/, templates/ blocked by .htaccess (403 on direct access)
- **Raw file blocking** — .sql, .log, .sh, .bak, .env, .key, .pem files blocked from web access
- **Directory listing disabled** — Options -Indexes in .htaccess
- **Error handling** — global exception handler shows clean error page; stack traces only with TC_DEBUG=true
- **Role-based access control** — admin pages check role before rendering; staff/admin/superadmin hierarchy
- **Input sanitization** — tc_sanitize() strips HTML tags and trims whitespace on all user input

14. Performance & Hosting



Performance

- **Browser caching headers** — CSS/JS cached 1 month, images cached 1 year via .htaccess Expires
- **Gzip compression** — HTML, CSS, JS, JSON compressed via mod_deflate



Hosting Compatibility

- PDO singleton — one database connection per request, reused across all queries
- `tc_config()` cache — configuration values fetched once per request and cached in memory
- `tc_base()` cache — store URL path calculated once per request and cached
- No framework overhead — direct PHP, no autoloader ORM layers for every query
- Static assets served directly by Apache — no PHP involved in CSS/JS/image delivery
- **Shared hosting compatible** — no root access, no SSH required for installation or operation
- **No Composer required** — zero PHP dependencies to install
- **No npm/Node required** — zero JavaScript build steps
- **WordPress coexistence** — runs alongside WordPress in a subdirectory with a 2-line `.htaccess` fix
- **Subdirectory install support** — `tc_base()` and `tc_asset()` auto-detect install path from `STORE_URL`
- Apache and LiteSpeed compatible
- Nginx configuration example included (`nginx.conf.example`)
- PHP 8.0, 8.1, 8.2, 8.3 compatible
- MySQL 5.7+, MySQL 8.0+, MariaDB 10.3+ compatible
- cPanel, Plesk, and DirectAdmin hosting compatible
- Clean URLs via `.htaccess` rewriting — `/products/slug`, `/category/slug`, `/page/slug`
- Maintenance mode flag file — drop a file in `/storage/` to enable, delete to disable

15. Plugin System



- Drop a folder in /plugins/ and register it in bootstrap.php — no admin activation required
- PSR-4 class autoloader — drop a class file in /includes/classes/ and it loads automatically
- plugin.json manifest spec for name, version, icon, and settings schema
- function_exists() hook pattern — integration points in core files check for plugin functions before calling
- tc_config() / tc_insert() for persistent plugin settings in tc_configuration table
- Full access to all db helpers (tc_row, tc_rows, tc_insert, tc_update, tc_query)
- tc_admin_log() — plugins can write to the admin activity log
- CREATE TABLE IF NOT EXISTS pattern with one-time install flag for plugin schema
- **Documented integration points** — product page, checkout flow, admin product edit/save, order save, storefront header/footer, payment processing
- Full plugin developer documentation included (HTML docs site + Word reference)

The Plugin API documentation is available at /docs in the TrellisCart installation directory, covering every database function, helper, CSS class, template variable, and integration point with working code examples.

16. Database Schema

TrellisCart uses a prefix-based MySQL schema (default: tc_). All 36 tables are created by the installer and managed through tc_table() references in code. The prefix can be customized at install time to support multiple TrellisCart installs in the same database.



All 36 Tables

- tc_configuration — key-value store for all 30+ store settings
- tc_products — full product catalog with 25+ columns
- tc_categories — self-referencing category tree
- tc_manufacturers — brands/manufacturers
- tc_products_to_categories — many-to-many product ↔ category
- tc_product_images — gallery images per product
- tc_option_names / tc_option_values / tc_product_attributes — product variants
- tc_specials — time-limited sale pricing
- tc_featured — homepage featured product records
- tc_customers — customer accounts
- tc_customer_groups — Standard, VIP, Wholesale, etc.
- tc_address_book — multiple addresses per customer
- tc_coupons — promotional codes with full rule set
- tc_gift_certificates — gift certificate codes and balances
- tc_order_statuses — status definitions (Pending through Refunded)
- tc_orders — orders with all address and payment fields
- tc_order_items — line items per order
- tc_order_history — status change and note log per order
- tc_saved_carts — customer saved cart JSON data
- tc_reviews — product reviews and ratings
- tc_banners — promotional banners with positions
- tc_pages — static store pages
- tc_newsletter_subscribers — email subscriber list
- tc_tax_classes / tc_tax_rates / tc_zones — tax infrastructure
- tc_currencies / tc_languages / tc_countries — i18n infrastructure
- tc_admin_users — admin accounts with roles
- tc_admin_activity_log — full admin audit trail
- tc_import_log — Zen-Cart import history
- tc_upgrades — upgrade run history with backup paths
- tc_db_migrations — applied migration tracking

No monthly fees. No transaction fees. No third-party data access. No forced upgrades. You own the code, the data, and the store.

