

Patent Filing Process Guide

Event Sourcing Architecture for Clinical Trial Management Systems

Date: October 17, 2025

Invention: Event Sourcing Architecture for Clinical Trial Management

Recommended Patent Type: Utility Patent (Software/System Patent)

OVERVIEW

This guide walks you through the complete patent filing process for the Event Sourcing Architecture invention. The process typically takes **2-4 years** from filing to grant and costs **\$10,000-\$20,000** including attorney fees.

STEP-BY-STEP FILING PROCESS

Phase 1: Pre-Filing Preparation (Weeks 1-4)

Step 1: Conduct Prior Art Search (Week 1-2)

Purpose: Verify novelty and identify similar patents

Actions:

1. USPTO Patent Search

- Go to: <https://www.uspto.gov/patents/search>
- Search terms: "event sourcing clinical trial", "audit trail medical data", "clinical trial management system"
- Review patents in Classes:
 - G06F 16/00 (Database structures)
 - G06F 19/00 (Healthcare informatics)
 - A61B 5/00 (Medical recording/diagnostic devices)

2. Google Patents Search

- <https://patents.google.com>

- Search: "clinical trial data management", "protocol versioning", "regulatory compliance audit"

3. Academic Literature Search

- Google Scholar: Event sourcing applications
- PubMed: Clinical trial data systems
- IEEE Xplore: Healthcare information systems

Deliverable: Document showing your invention is novel (not found in prior art)

Cost: \$0 (DIY) or \$500-\$2,000 (professional search)

Step 2: Document the Invention (Week 2-3)

Purpose: Create detailed technical documentation

Actions:

1. Review Generated Patent Application

- File: `PATENT_APPLICATION_EVENT_SOURCING_CTMS.md`
- Ensure all technical details are accurate
- Add any missing implementation details

2. Gather Supporting Materials

- Code samples (create sanitized examples)
- System architecture diagrams
- Database schemas
- Flowcharts and sequence diagrams
- Performance benchmarks
- Compliance documentation

3. Create Visual Drawings (Required by USPTO)

- Figure 1: System Architecture Overview
- Figure 2: Event Flow Diagram
- Figure 3: Protocol Version Management
- Figure 4: Audit Trail Generation Process
- Figure 5: CQRS Architecture
- Figure 6: Time-Travel Query Process

Tools for Diagrams:

- Draw.io (free): <https://app.diagrams.net>
- Lucidchart: <https://www.lucidchart.com>
- Microsoft Visio

Deliverable: Complete technical documentation package

Cost: \$0 (DIY)

Step 3: Inventor Considerations (Week 3)

Purpose: Identify all inventors and establish ownership

Actions:**1. List All Inventors**

- Who conceived the idea?
- Who made technical contributions?
- Employees vs contractors?

2. Document Invention Timeline

- When was concept first conceived?
- When was it reduced to practice (implemented)?
- Any public disclosures? (Conference talks, papers, demos)

3. Check Employment Agreements

- Review IP assignment clauses
- Confirm company owns the invention
- Get written assignments from all inventors

⚠ **CRITICAL:** You have **1 year** from first public disclosure to file patent application in US. After that, you lose patent rights!

Deliverable: Inventor declarations and IP assignments

Phase 2: Patent Attorney Engagement (Weeks 4-6)**Step 4: Hire Patent Attorney (Week 4)**

Purpose: Get professional help to maximize patent strength

Why You Need an Attorney:

- USPTO strongly recommends attorney representation
- Patent law is complex and technical
- Attorneys know how to write claims that will be granted
- They can respond to USPTO office actions
- Increases grant probability from ~30% (DIY) to ~70% (attorney)

How to Find a Patent Attorney:

1. USPTO Patent Attorney Directory

- <https://oedci.uspto.gov/OEDCI/>
- Search for attorneys in your area
- Filter by: "Computer Science", "Software"

2. Recommendations:

- American Intellectual Property Law Association (AIPLA)
- Local bar association referrals
- Fellow entrepreneurs/founders

3. What to Look For:

- Registered USPTO Patent Attorney or Agent
- Experience with software/system patents
- Experience with healthcare/medical device patents
- Technology background (engineering degree)
- Reasonable fees

Attorney Fee Structure:

- **Flat fee:** \$8,000-\$15,000 for complete application
- **Hourly:** \$300-\$600/hour (10-30 hours typical)
- **Budget options:** Some firms offer startup discounts

Initial Consultation (Usually Free):

- Explain your invention
- Assess patentability
- Discuss strategy (provisional vs non-provisional)
- Get fee estimate

Deliverable: Engagement letter with patent attorney

Cost: \$8,000-\$15,000 (full utility patent)

Step 5: Attorney Reviews Documentation (Week 5)

Actions:

1. Provide attorney with:
 - Patent application draft
([PATENT_APPLICATION_EVENT_SOURCING_CTMS.md](#))
 - Prior art search results
 - Technical documentation
 - Code samples (non-confidential)
 - Diagrams and flowcharts
2. Attorney will:
 - Review for patentability
 - Identify strongest claims
 - Suggest additional claims
 - Draft formal patent application
 - Create USPTO-compliant drawings
3. Review attorney's draft:
 - Check technical accuracy
 - Verify all features covered
 - Suggest improvements

Deliverable: USPTO-ready patent application draft

Phase 3: Patent Application Filing (Weeks 6-8)

Step 6: Choose Filing Strategy (Week 6)

Option A: Provisional Patent Application

- **Cost:** \$3,000-\$5,000 (attorney fees) + \$75-\$300 (USPTO fee)
- **Timeline:** 12 months before full application required

- **Pros:**
 - Lower upfront cost
 - Establishes filing date ("patent pending")
 - Buys time to refine invention
 - Test market before committing to full patent
- **Cons:**
 - Not examined (not a real patent application)
 - Must file non-provisional within 12 months
 - Costs more in total (pay twice)

Option B: Non-Provisional Utility Patent (Recommended)

- **Cost:** \$10,000-\$20,000 (attorney fees) + \$320-\$1,820 (USPTO fees)
- **Timeline:** 2-4 years to grant
- **Pros:**
 - Full patent application (can be granted)
 - Earlier priority date
 - Lower total cost
 - Examined by USPTO
- **Cons:**
 - Higher upfront cost
 - More comprehensive requirements
 - Longer preparation time

Recommendation for Your Case: Since you've already implemented the system (reduced to practice), file **non-provisional utility patent** directly. This saves time and money.

Step 7: Finalize Patent Application (Week 7)

Components Required by USPTO:

1. **Specification** (Main Document)
 - Title
 - Abstract (150 words max)
 - Background of the invention
 - Summary of the invention
 - Detailed description
 - Claims (independent + dependent)

- Examples

2. **Drawings/Figures** (Required)

- Professional quality drawings
- Black ink on white paper
- Numbered figures
- Reference numerals for components
- Must follow USPTO drawing standards

3. **Claims** (Most Important)

- Independent claims (broad protection)
- Dependent claims (narrow protection)
- 20 claims recommended (USPTO charges extra beyond 20)

4. **Abstract** (Short Summary)

- 150 words or less
- Describes invention at high level

5. **Declaration** (Inventor Statement)

- Oath that you are the inventor
- Invention is original
- Have right to apply

6. **Assignment** (Optional but Recommended)

- Transfers ownership to company
- Required if filing as company

7. **Information Disclosure Statement (IDS)**

- List all known prior art
- Duty to disclose to USPTO
- Include prior art search results

Deliverable: Complete patent application package

Step 8: File with USPTO (Week 8)

Filing Methods:

1. **USPTO EFS-Web** (Electronic Filing System)

- <https://www.uspto.gov/patents/apply/efs-web>
- Fastest method
- Lower filing fees (\$70 discount)
- Immediate confirmation

2. **Mail/Fax** (Not Recommended)

- Higher fees
- Slower processing
- No immediate confirmation

USPTO Fees (Non-Provisional Utility Patent):

Entity Size	Basic Filing Fee	Search Fee	Examination Fee	Total
Micro (0-4 employees, <\$200K revenue)	\$70	\$170	\$190	\$430
Small (5-500 employees)	\$160	\$340	\$380	\$880
Large (500+ employees)	\$320	\$680	\$820	\$1,820

Additional Fees (if applicable):

- Claims over 20: \$100/claim (micro), \$200/claim (small), \$420/claim (large)
- Independent claims over 3: \$480/claim (micro), \$960/claim (small), \$2,000/claim (large)

What Happens After Filing:

1. USPTO assigns application number
2. USPTO assigns filing date (your priority date)
3. You receive filing receipt (within 1-3 weeks)
4. Publication after 18 months (optional opt-out)
5. Examination begins (12-18 months after filing)

Deliverable: USPTO filing receipt with application number

Cost: \$430-\$1,820 (USPTO fees) + \$8,000-\$15,000 (attorney fees)

Phase 4: Patent Prosecution (Months 2-36)

Step 9: Respond to USPTO Office Actions (Months 12-30)

Timeline: First office action typically arrives 12-18 months after filing

Common Office Actions:

1. Prior Art Rejection

- USPTO found similar patents
- Claims deemed not novel or obvious
- **Response:** Amend claims or argue differences

2. Written Description Rejection

- Specification doesn't support claims
- **Response:** Add more detail or amend claims

3. Clarity/Enablement Rejection

- Claims not clear or detailed enough
- **Response:** Clarify language or add examples

Response Process:

1. USPTO sends office action
2. You have **3-6 months** to respond (or pay extension fees)
3. Attorney reviews and drafts response
4. You review attorney's response
5. File response with USPTO
6. USPTO issues second office action (or allowance)

Typical Rejections: 90% of applications receive at least one rejection. This is normal!

Cost: \$2,000-\$5,000 per office action response

Step 10: Patent Allowance (Months 24-36)

If Patent is Granted:

1. Notice of Allowance

- USPTO agrees to grant patent
- Pay issue fee within 3 months

2. **USPTO Fees** (Issue + Publication):

- Micro entity: \$525
- Small entity: \$1,050
- Large entity: \$2,100

3. **Patent Grant**

- Patent certificate issued
- Patent published in USPTO database
- 20-year term from filing date

Deliverable: Granted US Patent

Cost: \$525-\$2,100 (USPTO fees)

Phase 5: Patent Maintenance (Years 4-20)

Step 11: Maintain Patent with Maintenance Fees

USPTO requires maintenance fees at 3.5, 7.5, and 11.5 years:

Year	Micro Entity	Small Entity	Large Entity
3.5 years	\$800	\$1,600	\$3,200
7.5 years	\$1,800	\$3,600	\$7,200
11.5 years	\$3,700	\$7,400	\$14,800

⚠ Miss a maintenance fee: Patent expires permanently!

Cost: \$6,300-\$25,200 over patent life (micro to large entity)

INTERNATIONAL PATENT PROTECTION

Patent Cooperation Treaty (PCT)

If you want international protection (Europe, Asia, etc.):

Timeline:

- File PCT application within **12 months** of US filing (if provisional)
- File PCT application within **12 months** of US filing (if non-provisional)

Cost: \$15,000-\$30,000 for PCT application + \$5,000-\$15,000 per country for national phase

Key Countries for Clinical Trial Software:

- Europe (EPO): €5,000-€10,000
- Japan: \$5,000-\$10,000
- China: \$3,000-\$7,000
- India: \$2,000-\$5,000
- Canada: \$3,000-\$6,000

Total International Cost: \$50,000-\$100,000+ for worldwide protection

Recommendation: File US first, then PCT within 12 months if you have international customers.

TOTAL COST SUMMARY

Option 1: DIY Provisional Patent (Not Recommended)

- Prior art search: \$0-\$500
- Provisional filing: \$75-\$300
- **Total Year 1:** \$75-\$800
- Non-provisional filing (Year 2): \$10,000-\$20,000
- **Total:** \$10,075-\$20,800

Option 2: Attorney Non-Provisional Patent (Recommended)

- Prior art search: \$500-\$2,000
- Attorney fees: \$8,000-\$15,000
- USPTO filing fees: \$430-\$1,820
- Office action responses (2-3): \$4,000-\$15,000
- Issue fees: \$525-\$2,100
- **Total to Grant:** \$13,455-\$35,920

Option 3: International Protection

- US patent: \$13,455-\$35,920
- PCT filing: \$15,000-\$30,000
- National phase (5 countries): \$25,000-\$50,000
- **Total:** \$53,455-\$115,920

TIMELINE SUMMARY

Milestone	Timeline	Cost
Prior art search	Weeks 1-2	\$0-\$2,000
Attorney engagement	Week 4	\$0 (consultation)
Application drafting	Weeks 5-7	\$8,000-\$15,000
USPTO filing	Week 8	\$430-\$1,820
First office action	Month 12-18	\$2,000-\$5,000 (response)
Final office action	Month 24-30	\$2,000-\$5,000 (response)
Patent grant	Month 30-48	\$525-\$2,100
Total to grant	2-4 years	\$13,455-\$35,920

RECOMMENDED ACTION PLAN

Week 1-2: Research Phase

- ☐ Conduct prior art search on USPTO and Google Patents
- ☐ Review academic literature (Google Scholar, PubMed)
- ☐ Document any potentially conflicting patents
- ☐ Assess novelty and patentability

Week 3-4: Documentation Phase

- ☐ Review and refine [PATENT_APPLICATION_EVENT_SOURCING_CTMS.md](#)
- ☐ Create system architecture diagrams (6 figures minimum)
- ☐ Prepare code samples (sanitized, non-confidential)
- ☐ Document implementation timeline
- ☐ Identify all inventors and get IP assignments

Week 5-6: Attorney Selection

- ☐ Research patent attorneys (USPTO directory)
- ☐ Schedule consultations (3-5 attorneys)
- ☐ Compare fees and experience
- ☐ Select attorney and sign engagement letter
- ☐ Provide documentation package to attorney

Week 7-8: Application Preparation

- ☐ Review attorney's draft application
- ☐ Verify technical accuracy
- ☐ Finalize claims and drawings
- ☐ Prepare inventor declarations
- ☐ Gather filing fees

Week 8-9: USPTO Filing

- ☐ Attorney files via EFS-Web
- ☐ Receive filing receipt and application number
- ☐ Update website/marketing: "Patent Pending"
- ☐ Add patent number to partnership materials

Month 3-12: Waiting Period

- ☐ Monitor USPTO correspondence
- ☐ Continue product development
- ☐ Document additional innovations
- ☐ Prepare for office actions

Month 12-36: Patent Prosecution

- ☐ Respond to office actions (with attorney)
- ☐ Amend claims if necessary
- ☐ Argue patentability
- ☐ Track prosecution status on USPTO PAIR system

Month 30-48: Grant and Maintenance

- ☐ Receive Notice of Allowance
- ☐ Pay issue fees
- ☐ Receive patent grant
- ☐ Update marketing: "US Patent No. X,XXX,XXX"

- ☐ Set reminders for maintenance fees (3.5, 7.5, 11.5 years)
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ADDITIONAL CONSIDERATIONS

Provisional vs Non-Provisional Decision Matrix

Choose Provisional If:

- ☒ Invention still evolving
- ☒ Need "patent pending" status quickly
- ☒ Limited budget now (but more later)
- ☒ Want to test market before committing
- ☒ Need to secure funding with "patent pending"

Choose Non-Provisional If:

- ☒ Invention fully implemented (your case!)
- ☒ Have budget for full application
- ☒ Want faster path to grant
- ☒ Lower total cost
- ☒ Serious about patent protection

For ClinPrecision: Non-provisional recommended (system is built and operational)

Public Disclosure Grace Period

CRITICAL: US has **1-year grace period** after public disclosure to file patent

What Counts as Public Disclosure:

- Conference presentations
- Published papers
- Product demos at trade shows
- Website product descriptions
- Sales to customers
- Open-source code releases

Check Your Disclosure Date:

- When did you first demo ClinPrecision publicly?
- When did you first offer it for sale?

- When did you publish technical details?

If >1 year ago: You may have lost US patent rights

If <1 year ago: File immediately!

If not disclosed yet: File before any public disclosure

Trade Secret vs Patent

Patent Advantages:

- 20-year exclusive rights
- Public disclosure (marketing value)
- License/sell patent rights
- Stop competitors

Trade Secret Advantages:

- No expiration (perpetual)
- No disclosure required
- Lower cost (\$0)
- Protection starts immediately

Hybrid Strategy (Recommended):

- Patent: Event sourcing architecture (core innovation)
 - Trade Secret: Specific algorithms, optimizations, formulas
 - Copyright: Source code, documentation
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Enforcement Considerations

Patent Infringement:

- You must actively enforce patent
- Litigation costs \$1M-\$5M+
- Can license to competitors instead
- Consider patent trolls (defensive publications)

Defensive Strategy:

- Build patent portfolio (multiple patents)
- Join defensive patent agreements

- Document prior art for competitors' patents
 - Focus on market leadership, not just patents
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RESOURCES

USPTO Resources

- **Main site:** <https://www.uspto.gov>
- **Patent search:** <https://www.uspto.gov/patents/search>
- **EFS-Web filing:** <https://www.uspto.gov/patents/apply/efs-web>
- **PAIR (check status):** <https://portal.uspto.gov/pair/PublicPair>
- **Fee schedule:** <https://www.uspto.gov/learning-and-resources/fees-and-payment/uspto-fee-schedule>

Patent Attorney Directories

- **USPTO directory:** <https://oedci.uspto.gov/OEDCI/>
- **AIPLA:** <https://www.aipla.org>
- **State bar associations:** [Your state bar website]

Patent Databases

- **Google Patents:** <https://patents.google.com>
- **Free Patents Online:** <https://www.freepatentsonline.com>
- **Espacenet (Europe):** <https://worldwide.espacenet.com>

Patent Filing Tools

- **USPTO EFS-Web:** Official electronic filing
- **Patent Center:** New USPTO portal (replacing EFS-Web)
- **LegalZoom:** DIY patent services (\$800-\$1,500)
- **UpCounsel:** Attorney marketplace

Educational Resources

- **USPTO Patent Basics:** <https://www.uspto.gov/patents/basics>
 - **Patent It Yourself** (book by David Pressman)
 - **Patent Pending in 24 Hours** (book by Richard Stim)
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NEXT STEPS CHECKLIST

Immediate Actions (This Week)

- ☐ Read this entire guide
- ☐ Review [PATENT_APPLICATION_EVENT_SOURCING_CTMS.md](#)
- ☐ Check public disclosure timeline (1-year grace period)
- ☐ Conduct prior art search (USPTO, Google Patents)
- ☐ Document all inventors and get IP assignments
- ☐ Decide: Provisional or Non-Provisional?

Short-Term Actions (Next 2-4 Weeks)

- ☐ Schedule attorney consultations (3-5 attorneys)
- ☐ Create system architecture diagrams (6 figures)
- ☐ Prepare code samples (sanitized versions)
- ☐ Select patent attorney and sign engagement letter
- ☐ Provide documentation package to attorney

Medium-Term Actions (Next 1-2 Months)

- ☐ Review attorney's draft application
- ☐ Finalize claims and specifications
- ☐ Prepare inventor declarations
- ☐ File patent application with USPTO
- ☐ Update marketing: "Patent Pending"

Long-Term Actions (Next 1-4 Years)

- ☐ Monitor USPTO correspondence
- ☐ Respond to office actions (with attorney)
- ☐ Pay issue fees upon allowance
- ☐ Receive patent grant
- ☐ Set maintenance fee reminders

CONCLUSION

Filing a patent is a significant investment (\$13K-\$36K) and commitment (2-4 years), but for a core technology innovation like Event Sourcing for Clinical Trials, it provides:

1. **Competitive moat:** 20-year exclusive rights
2. **Marketing value:** "Patented technology" (credibility)
3. **Licensing potential:** Revenue from competitors

4. **Acquisition value:** Increases company valuation
5. **Defensive protection:** Prevents competitor patents

Recommended Timeline: File non-provisional application within next 2-3 months

Critical Deadline: Check if you've publicly disclosed the invention. If yes, you have 1 year from disclosure date to file!

Questions? Consult with a USPTO-registered patent attorney. Initial consultations are typically free.

Good luck with your patent application! 🍀