📚 PaperCraft User Guide

Welcome to the comprehensive user guide for PaperCraft! This guide will walk you through everything you need to know about converting Markdown documents to beautiful PDF and DOCX files.

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Getting Started

Installation

PaperCraft is distributed as a single executable file. Simply download it and you're ready to go!

1. Download the latest release for your platform
2. Extract the executable to a directory of your choice
3. (Optional) Add the directory to your PATH for easy access

First Conversion

Let's start with a simple example:

```
# Convert a Markdown file to PDF (default format)
papercraft -i my-document.md -o my-document.pdf

# Convert the same file to DOCX
papercraft -i my-document.md -o my-document.docx --format docx
```

That's it! PaperCraft will handle the rest.

Output Formats

PaperCraft supports two output formats, each with its own strengths:

PDF Output

PDF is the default format, perfect for:

- **Professional documents** requiring precise formatting
- **Print-ready materials** with exact page layouts
- **Documents with complex styling** using CSS themes
- **Academic papers** with citations and mathematical expressions
- **Technical documentation** with syntax-highlighted code

Features:

- Chrome-based rendering for pixel-perfect output
- Custom CSS themes and styling
- LaTeX math expression support
- Advanced typography with web fonts
- Print optimization

DOCX Output

DOCX format is ideal for:

- **Collaborative documents** that need editing in Microsoft Word
- **Business documents** requiring further formatting
- **Templates** that will be modified by others
- **Cross-platform compatibility** with various word processors

- **Documents requiring tracked changes** and comments

Features:

- Microsoft Word compatible format
- Structured headings and paragraphs
- Text formatting (bold, italic, strikethrough)
- Code blocks with monospace fonts
- Lists and basic table support
- Cross-platform word processor compatibility

Choosing the Right Format

Use Case	Recommended Format
Final documents for distribution	PDF
Documents for further editing	DOCX
Print materials	PDF
Collaborative editing	DOCX
Complex styling/themes	PDF
Simple business documents	DOCX
Academic papers with math	PDF
Template documents	DOCX

Command Line Interface

Basic Syntax

```
papercraft [OPTIONS] --input <FILE/DIR> --output <FILE/DIR>
```

Essential Options

Option	Description	Example
`-i, --input <PATH>`	Input file or directory	`-i document.md`
`-o, --output <PATH>`	Output file or directory	`-o document.pdf`
`--format <FORMAT>`	Output format (pdf, docx)	`--format docx`
`--batch`	Process entire directories	`--batch`
`--theme <THEME>`	Built-in theme (PDF only)	`--theme modern`
`-c, --config <FILE>`	Configuration file	`-c config.toml`
`--verbose`	Detailed output	`--verbose`
`--help`	Show help information	`--help`

Format-Specific Options

Some options apply to specific output formats:

PDF-Only Options:

- `--theme` - Built-in themes (modern, academic, minimal, dark)
- `--theme-file` - Custom CSS theme file
- `--toc` / `--no-toc` - Table of contents
- `--line-numbers` - Code line numbers
- `--optimize-images` - Image optimization

Universal Options:

- `--paper-size` - Page size (A4, Letter, Legal, etc.)
- `--orientation` - Page orientation (portrait, landscape)
- `--margins` - Page margins
- `--font-family` - Font family

- `--font-size` - Font size

Configuration

Configuration File

PaperCraft supports TOML, YAML, and JSON configuration files. Generate a sample configuration:

```
papercraft --generate-config papercraft.toml
```

Sample Configuration

```
[output]
format = "pdf"  # Default format: "pdf" or "docx"
quality = 1.0
compression = false

[page]
size = "A4"
orientation = "portrait"

[page.margins]
top = "1in"
right = "1in"
bottom = "1in"
left = "1in"

[fonts]
family = "Inter"
size = "11pt"

[theme]
built_in = "default"  # PDF only: "default", "academic", "modern", "
# css_file = "custom-theme.css"  # PDF only: path to custom CSS

[toc]
enabled = true
title = "Table of Contents"
max_depth = 3
```

```
[code]
line_numbers = true  # PDF only
highlight_theme = "Solarized (dark)"  # PDF only

[images]
optimization = true
max_width = 800
max_height = 600

[references]
footnotes.enabled = true
bibliography.enabled = true
```

Environment Variables

You can also use environment variables:

```
export PAPERCRAFT_FORMAT=docx
export PAPERCRAFT_THEME=modern
export PAPERCRAFT_VERBOSE=true
```

Themes and Styling

Built-in Themes (PDF Only)

PaperCraft includes several professional themes for PDF output:

Default Theme

Clean and versatile design suitable for any document type.

```
papercraft -i doc.md -o doc.pdf --theme default
```

Academic Theme

Perfect for research papers, theses, and academic documents.

```
papercraft -i paper.md -o paper.pdf --theme academic
```

Modern Theme

Contemporary design with vibrant accents and modern typography.

```
papercraft -i report.md -o report.pdf --theme modern
```

Minimal Theme

Clean, distraction-free layout focusing on content.

```
papercraft -i article.md -o article.pdf --theme minimal
```

Dark Theme

Dark background theme for reduced eye strain.

```
papercraft -i doc.md -o doc.pdf --theme dark
```

Custom Themes (PDF Only)

Create your own CSS theme file:

```
/* custom-theme.css */
body {
    font-family: 'Georgia', serif;
    line-height: 1.6;
    color: #333;
}

h1 {
    color: #2c5aa0;
    border-bottom: 2px solid #2c5aa0;
}

code {
```

```
    background-color: #f5f5f5;
    padding: 2px 4px;
    border-radius: 3px;
}
```

Apply your custom theme:

```
papercraft -i doc.md -o doc.pdf --theme-file custom-theme.css
```

DOCX Styling

DOCX output uses structured formatting:

- **Headings** are properly structured (H1, H2, H3, etc.)
- **Text formatting** includes bold, italic, strikethrough
- **Code blocks** use monospace fonts
- **Lists** are properly indented
- **Page settings** respect margins and paper size from configuration

Batch Processing

Basic Batch Processing

Convert entire directories:

```
# Convert all .md files in docs/ to PDF
papercraft -i docs/ -o pdf-output/ --batch

# Convert all .md files in docs/ to DOCX
papercraft -i docs/ -o docx-output/ --batch --format docx
```

Concurrent Processing

Speed up batch operations with concurrent processing:

```
# Use 4 concurrent threads
papercraft -i docs/ -o output/ --batch --concurrent --jobs 4
```

```
# Use all available CPU cores
papercraft -i docs/ -o output/ --batch --concurrent
```

Directory Structure

PaperCraft preserves your directory structure:

```
docs/
├── chapter1/
│   ├── intro.md
│   └── overview.md
├── chapter2/
│   └── details.md
└── conclusion.md
```

Becomes:

```
output/
├── chapter1/
│   ├── intro.pdf (or .docx)
│   └── overview.pdf (or .docx)
├── chapter2/
│   └── details.pdf (or .docx)
└── conclusion.pdf (or .docx)
```

Progress Tracking

Monitor batch processing progress:

```
papercraft -i large-docs/ -o output/ --batch --verbose
```

Output:

```
🔄 Starting batch processing: job_1234567890 (25 files)
📄 Processing: chapter1/intro.md → intro.pdf
  ✓ Completed: intro.pdf
📄 Processing: chapter1/overview.md → overview.pdf
  ✓ Completed: overview.pdf
```

```
...
🎉 Batch processing complete!
  ✓ Successfully processed: 23 files
  ✗ Failed: 2 files
```

Advanced Features

Directory Watching

Automatically regenerate documents when Markdown files change:

```
# Watch for changes and regenerate PDFs
papercraft -i docs/ -o output/ --watch

# Watch for changes and regenerate DOCX files
papercraft -i docs/ -o output/ --watch --format docx
```

This is perfect for:

- **Live preview** during document writing
- **Continuous integration** setups
- **Documentation websites** with auto-updating PDFs/DOCX

Resume Capability

For large batch jobs, PaperCraft can resume interrupted processing:

```
# List incomplete jobs
papercraft --list-jobs

# Resume a specific job
papercraft --resume job_1234567890

# Cancel a running job
papercraft --cancel-job job_1234567890
```

Dry Run Mode

Preview what will happen without actually converting files:

```
# See what files would be processed
papercraft -i docs/ -o output/ --dry-run

# Include validation checks
papercraft -i docs/ -o output/ --dry-run --validate

# Show detailed validation results
papercraft -i docs/ -o output/ --dry-run --show-validation-details
```

Validation

Check your Markdown files for potential issues:

```
# Validate before conversion
papercraft -i docs/ -o output/ --validate

# Skip validation
papercraft -i docs/ -o output/ --no-validate
```

Common validation checks:

- Broken internal links
- Missing images
- Malformed tables
- Invalid frontmatter
- Encoding issues

Memory Management

For large documents or batch operations:

```
# Limit memory usage to 512MB
papercraft -i huge-docs/ -o output/ --batch --max-memory 512
```

```
# Enable image optimization to reduce memory usage
papercraft -i docs/ -o output/ --batch --optimize-images
```

Troubleshooting

Common Issues and Solutions

PDF-Specific Issues

Issue: First conversion takes a long time
Solution: Chrome Headless Shell (~50MB) downloads automatically on first use. Subsequent conversions will be much faster.

Issue: Fonts not displaying correctly
Solution:

- Ensure fonts are installed system-wide
- Use web fonts in your CSS
- Check font names in configuration

Issue: Math expressions not rendering
Solution: Ensure your Markdown uses proper LaTeX syntax: `$inline math$` or `$$display math$$`

DOCX-Specific Issues

Issue: Document appears as plain text
Solution:

- Ensure you're opening with Microsoft Word or compatible software
- Try different word processors (LibreOffice, Google Docs)
- Check file association settings

Issue: Formatting not preserved
Solution:

- DOCX format has different capabilities than PDF

- Complex styling may not translate perfectly
- Consider using PDF for documents requiring exact formatting

General Issues

Issue: Large files cause memory errors
Solution:

```
papercraft -i large-file.md -o output.pdf --max-memory 2048 --optim
```

Issue: Batch processing fails on some files
Solution:

```
papercraft -i docs/ -o output/ --batch --verbose --validate
```

Issue: Images not loading
Solution:

- Check image paths are relative to the Markdown file
- Ensure image files exist
- Use supported formats (PNG, JPEG, GIF, etc.)

Debug Mode

Enable detailed logging for troubleshooting:

```
papercraft -i input.md -o output.pdf --debug --verbose
```

This provides:

- Detailed processing steps
- Error messages with context
- Performance timing information
- Memory usage statistics
- File processing details

Getting Help

1. **Check this guide** for common solutions
2. **Run with** `--verbose` for detailed output
3. **Use** `--dry-run` to preview operations
4. **Enable** `--debug` for technical details
5. **Check GitHub issues** for known problems

Examples

Document Types

Technical Documentation

PDF Version:

```
papercraft -i api-docs/ -o documentation.pdf \
  --theme academic \
  --toc \
  --line-numbers \
  --optimize-images \
  --page-numbers \
  --batch
```

DOCX Version:

```
papercraft -i api-docs/ -o documentation.docx \
  --format docx \
  --paper-size A4 \
  --margins "1in" \
  --font-family "Calibri" \
  --batch
```

Academic Paper

PDF Version:

```
papercraft -i research-paper.md -o paper.pdf \
  --theme academic \
  --paper-size A4 \
  --margins "1in" \
  --font-family "Times New Roman" \
  --font-size "12pt" \
  --footnotes \
  --bibliography \
  --toc
```

DOCX Version:

```
papercraft -i research-paper.md -o paper.docx \
  --format docx \
  --paper-size A4 \
  --margins "1in" \
  --font-family "Times New Roman" \
  --font-size "12pt"
```

Business Report

PDF Version:

```
papercraft -i quarterly-report.md -o report.pdf \
  --theme modern \
  --header-template "<div>Quarterly Report Q4 2024</div>" \
  --footer-template "<div>Page {page} of {total}</div>" \
  --toc \
  --optimize-images
```

DOCX Version:

```
papercraft -i quarterly-report.md -o report.docx \
  --format docx \
  --paper-size Letter \
  --margins "1in" \
  --font-family "Arial"
```

Personal Blog

PDF Version:

```
papercraft -i blog-posts/ -o blog-pdf/ \
  --theme minimal \
  --batch \
  --concurrent \
  --optimize-images
```

DOCX Version:

```
papercraft -i blog-posts/ -o blog-docx/ \
  --format docx \
  --batch \
  --concurrent \
  --paper-size A4
```

Workflow Examples

Documentation Website

```
# Generate both PDF and DOCX versions
papercraft -i docs/ -o dist/pdf/ --batch --theme modern --toc
papercraft -i docs/ -o dist/docx/ --batch --format docx

# Watch for changes during development
papercraft -i docs/ -o dist/pdf/ --watch --theme modern
```

Academic Workflow

```
# Draft in DOCX for collaboration
papercraft -i thesis.md -o thesis-draft.docx --format docx

# Final version in PDF for submission
papercraft -i thesis.md -o thesis-final.pdf --theme academic --toc
```

Corporate Documentation

```
# Generate employee handbook in both formats
papercraft -i handbook/ -o dist/ --batch --concurrent

# PDF for official distribution
papercraft -i handbook/ -o official-handbook.pdf --theme modern --to

# DOCX for departmental customization
papercraft -i handbook/ -o editable/ --batch --format docx
```

Tips and Best Practices

Markdown Best Practices

1. **Use proper heading hierarchy** (H1 → H2 → H3)
2. **Include alt text for images** for accessibility
3. **Use relative paths** for images and links
4. **Validate your Markdown** before conversion
5. **Test with both formats** to ensure compatibility

Performance Optimization

1. **Use** `--concurrent` for batch operations
2. **Enable** `--optimize-images` for large images
3. **Set appropriate** `--max-memory` limits
4. **Use** `--dry-run` to preview large operations

Format Selection Guidelines

Choose PDF when:

- You need pixel-perfect formatting
- The document is final/read-only
- You require custom styling/themes
- You need mathematical expressions
- Print quality is important

Choose DOCX when:

- The document needs further editing
- You're collaborating with others
- You need template documents
- Cross-platform editing is required
- Simple formatting is sufficient

Conclusion

PaperCraft provides a powerful and flexible solution for converting Markdown to both PDF and DOCX formats. Whether you're creating technical documentation, academic papers, or business reports, PaperCraft has the features and flexibility to meet your needs.

For more help:

- Use `papercraft --help` for quick reference
- Run `papercraft --setup-wizard` for interactive setup
- Check the GitHub repository for updates and community support

Happy document creation! 🎨 📄 ✨