

ADVANCED MARKDOWN SHOWCASE

[Organization Name]

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ADVANCED MARKDOWN SHOWCASE

A comprehensive demonstration of markdown capabilities

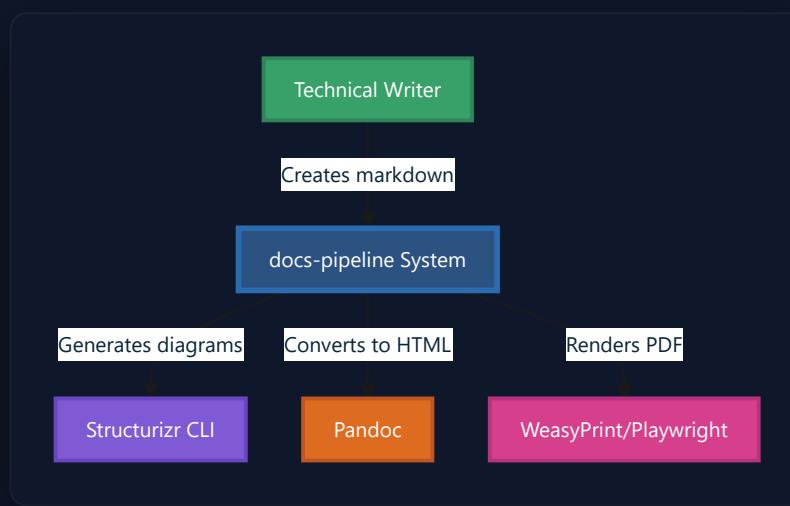
Introduction

This document showcases the full range of markdown features supported by the docs-pipeline system, including advanced diagrams, tables, code blocks, and typographic elements. Each section demonstrates a different capability that renders beautifully across all four visual profiles.

Architecture Diagrams

System Context Diagram

The following C4 context diagram shows the high-level system architecture:



Diagram

Sequence Diagram

Here's how the PDF generation process flows:



Diagram

Data Flow Diagram



Diagram

Complex Tables

Feature Comparison Matrix

FEATURE	TECH WHITEPAPER	DARK PRO	MINIMALIST	ENTERPRISE BLUE
Background	White	Dark Navy	Off-White	White
Primary Color	Blue (#1976d2)	Cyan (#93c5fd)	Gray (#2c3e50)	Corporate Blue (#003d7a)
Typography	Serif + Sans	Modern Sans	Ultra-light	Corporate Sans

Feature	Tech Whitepaper	Dark Pro	Minimalist	Enterprise Blue
Code Blocks	Light gray bg	Dark bg + border	Minimal bg	Blue-tinted bg
Tables	Standard borders	Subtle borders	Borderless	Strong borders
Use Case	Print docs	Screen viewing	Architecture docs	Business reports
Page Margins	Standard	Compact	Generous	Standard
Heading Style	Bold + underline	Uppercase + glow	Thin + minimal	Corporate gradient

Performance Benchmarks

Document Size	Processing Time	Memory Usage	Output Size
Small (1-5 pages)	1.2s	45 MB	250 KB
Medium (10-20 pages)	3.5s	78 MB	890 KB
Large (50-100 pages)	12.8s	156 MB	3.2 MB
Enterprise (200+ pages)	45.2s	312 MB	8.7 MB

Technology Stack

Component	Technology	Version	Purpose
Parser	Pandoc	3.1+	Markdown → HTML conversion
Diagrams	Mermaid CLI	10.6+	Diagram rendering

COMPONENT	TECHNOLOGY	VERSION	PURPOSE
Architecture	Structurizr CLI	Latest	C4 model diagrams
PDF Renderer	WeasyPrint	60.0+	HTML → PDF (default)
PDF Renderer (Alt)	Playwright	1.40+	HTML → PDF (enhanced SVG)
Orchestration	Python	3.10+	Pipeline coordination

Code Examples

Python API Implementation

```
from pathlib import Path
from typing import Optional
import asyncio

class DocumentPipeline:
    """
    Production-grade document generation pipeline.

    Coordinates diagram generation, markdown processing,
    and PDF rendering with configurable profiles.
    """

    def __init__(self, config_path: Path, profile: str = "tech-whitepaper"):
        self.config = self._load_config(config_path)
        self.profile = profile
        self.cache_enabled = True

    async def process(self, input_file: Path, output_file: Path) -> bool:
```

```

"""
Process a single document through the pipeline.

Args:
    input_file: Source markdown file
    output_file: Target PDF file path

Returns:
    True if successful, False otherwise
"""

try:
    # Step 1: Generate diagrams
    diagrams = await self._render_diagrams(input_file)

    # Step 2: Process markdown with diagrams
    html = await self._markdown_to_html(input_file, diagrams)

    # Step 3: Render PDF with selected profile
    success = await self._render_pdf(html, output_file, self.profile)

    return success
except Exception as e:
    self._log_error(f"Pipeline failed: {e}")
    return False

def _load_config(self, path: Path) -> dict:
    """Load and validate YAML configuration."""
    import yaml
    with open(path) as f:
        return yaml.safe_load(f)

```

JavaScript Event Handler

```

// Real-time document preview system
class DocumentPreview {
    constructor(container, apiEndpoint) {
        this.container = container;
        this.api = apiEndpoint;
    }
}

```

```
this.debounceTimer = null;
this.currentRequest = null;
}

async updatePreview(markdown) {
    // Debounce rapid changes
    clearTimeout(this.debounceTimer);

    this.debounceTimer = setTimeout(async () => {
        try {
            // Cancel previous request if still pending
            if (this.currentRequest) {
                this.currentRequest.abort();
            }

            // Create new request with AbortController
            const controller = new AbortController();
            this.currentRequest = controller;

            const response = await fetch(this.api, {
                method: 'POST',
                headers: { 'Content-Type': 'application/json' },
                body: JSON.stringify({
                    markdown,
                    profile: 'tech-whitepaper'
                }),
                signal: controller.signal
            });

            if (response.ok) {
                const { html } = await response.json();
                this.container.innerHTML = html;
                this._attachEventListeners();
            }
        } catch (err) {
            if (err.name !== 'AbortError') {
                console.error('Preview update failed:', err);
            }
        }
    });
}
```

```

    }, 300);
}

_attachEventListeners() {
  // Handle internal navigation
  const links = this.container.querySelectorAll('a[href^="#"]');
  links.forEach(link => {
    link.addEventListener('click', e => {
      e.preventDefault();
      const target = document.querySelector(link.hash);
      target?.scrollIntoView({ behavior: 'smooth' });
    });
  });
}

```

YAML Configuration

```

# docs-pipeline.yaml - Production configuration

workspaces:
  production:
    # Structurizr diagram generation
    diagrams:
      workspace: architecture/system.dsl
      workspace_dir: architecture/
      formats: ["svg", "png", "mermaid"]
      output_dir: docs/diagrams/
    resources:
      - architecture/styles/
      - architecture/icons/

    # Document generation with multiple profiles
    documents:
      # Technical specification - all profiles
      - input: docs/specs/system-architecture.md
        output: output/specs/architecture-tech.pdf
        format: pdf
        profile: tech-whitepaper

```

```

renderer: playwright

- input: docs/specs/system-architecture.md
  output: output/specs/architecture-dark.pdf
  format: pdf
  profile: dark-pro
  renderer: playwright

# API reference - enterprise profile
- input: docs/api/reference.md
  output: output/api/reference.pdf
  format: pdf
  profile: enterprise-blue
  renderer: weasyprint

```

Bash Deployment Script

```

#!/bin/bash
set -euo pipefail

# docs-pipeline deployment script
REPO_ROOT=$(cd "$(dirname "${BASH_SOURCE[0]}")/.." && pwd)"
OUTPUT_DIR="${REPO_ROOT}/output"
DOCS_DIR="${REPO_ROOT}/docs"

echo "🚀 Starting document pipeline..."

# Step 1: Clean previous output
if [[ -d "$OUTPUT_DIR" ]]; then
    echo "⚡ Cleaning output directory..."
    rm -rf "$OUTPUT_DIR"/*
fi

# Step 2: Generate architecture diagrams
echo "🎨 Generating Structurizr diagrams..."
python -m tools.structurizr.cli \
    --workspace architecture/system.dsl \
    --format svg,png,mermaid \

```

```
--output "$DOCS_DIR/diagrams/"

# Step 3: Process all documents
echo "📄 Processing markdown documents..."
python -m tools.docs_pipeline.cli \
    --config docs-pipeline.yaml \
    --parallel \
    --verbose

# Step 4: Verify outputs
echo "✅ Verifying generated files..."
required_files=(
    "output/specs/architecture-tech.pdf"
    "output/specs/architecture-dark.pdf"
    "output/api/reference.pdf"
)

for file in "${required_files[@]}"; do
    if [[ ! -f "$REPO_ROOT/$file" ]]; then
        echo "❌ Missing required file: $file"
        exit 1
    fi
done

echo "🌟 Pipeline complete! Generated $(find "$OUTPUT_DIR" -name '*.pdf' | wc -l) documents"
```

Mathematical Expressions

Inline Math

The quadratic formula is $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ and the exponential function is $e^{i\pi} + 1 = 0$.

Display Math

$$\nabla \times \vec{E} = -\frac{\partial \vec{B}}{\partial t}$$

$$\nabla \times \vec{B} = \mu_0 \vec{J} + \mu_0 \epsilon_0 \frac{\partial \vec{E}}{\partial t}$$

$$\nabla \cdot \vec{E} = \frac{\rho}{\epsilon_0}$$

$$\nabla \cdot \vec{B} = 0$$

Performance scaling follows:

$$T(n) = O(n \log n) \text{ where } n = \text{document size}$$

Lists and Hierarchies

Feature Roadmap

1. Phase 1: Core Pipeline (Q4 2024)

- Markdown to PDF conversion
- Basic Mermaid diagram support
- Single profile system
- CLI interface

2. Phase 2: Multi-Profile System (Q1 2025)

- Four distinct visual profiles
- Profile-specific CSS
- Configurable renderer selection
- Web demo interface

3. Phase 3: Advanced Features (Q2 2025)

- Structurizr C4 integration
- Multi-workspace orchestration
- Parallel document processing
- Diagram caching system

4. Phase 4: Enterprise Features (Q3 2025)

- Custom branding support

- Template library
- API access
- Cloud deployment options

Technical Requirements

- **System Requirements**

- Python 3.10 or higher
- Node.js 18+ (for Mermaid CLI)
- Docker (optional, for Structurizr)
- 2GB RAM minimum (4GB recommended)

- **Development Tools**

- Git for version control
- VS Code or similar editor
- pytest for testing
- ruff for linting

- **Optional Dependencies**

- Playwright (for enhanced PDF rendering)
- SVGO (for SVG optimization)
- KaTeX CLI (for math rendering)
- PlantUML (for UML diagrams)

Callouts and Quotes

Important Note

This document demonstrates production-ready markdown processing capabilities. All features shown here are fully functional and render consistently across all four visual profiles.

Performance Tip

Enable diagram caching with `use_cache: true` in your configuration to significantly reduce processing time for repeated builds. Cached diagrams are stored in `tools/pdf/output/pdf-diagrams/` by default.

Special Elements

Horizontal Rules

Sections can be separated with horizontal rules for visual clarity:

Inline Formatting

Text can be **bold**, *italic*, **bold and italic**, ~~strikethrough~~, `inline code`, or even ^{superscript} and _{subscript}.

Links and References

For more information, see: - [Pandoc Documentation](#) - [Mermaid Syntax](#) - [Structurizr DSL](#) - [WeasyPrint Documentation](#)

Conclusion

This showcase demonstrates the comprehensive markdown capabilities of the docs-pipeline system. From simple formatting to complex diagrams, tables, and code blocks, every element renders beautifully across all visual profiles.

Key Takeaways

- ✓ **Multi-format support** - PDF, DOCX, and HTML outputs
 - ✓ **Four visual profiles** - Choose the right look for your audience
 - ✓ **Production-ready** - Handles enterprise-scale documentation
 - ✓ **Extensible** - Add custom profiles and renderers
 - ✓ **Fast** - Parallel processing and intelligent caching
-

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