

# Canvas/DOMMatrix Build Error Fix

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## Issue

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Build failing during page data collection with canvas-related errors:

```
Warning: Cannot polyfill DOMMatrix, rendering may be broken.  
ReferenceError: DOMMatrix is not defined  
  
Error: Failed to collect page data for /api/documents/[id]/extract
```

## Root Cause

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The `canvas` package (used by `pdf-parse`) was being imported during the Next.js build phase. Canvas requires browser APIs (DOMMatrix, ImageData, Path2D) that don't exist in Node.js.

## Solution

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### 1. Dynamic Imports

Changed all `pdf-parse` and `tesseract.js` imports to dynamic imports:

```
// Before  
import pdf from 'pdf-parse';  
  
// After  
const pdf = await import('pdf-parse');  
const pdfParse = pdf.default || pdf;
```

### 2. Webpack External

Updated `next.config.js` to externalize canvas:

```
webpack: (config, { isServer }) => {  
  if (isServer) {  
    config.externals.push({  
      canvas: 'commonjs canvas',  
      'pdf-parse': 'commonjs pdf-parse',  
    });  
  }  
  return config;  
}
```

## Files Changed

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1. `src/lib/documents/pdf-extractor.ts` - Dynamic imports
2. `src/lib/documents/ocr.ts` - Dynamic imports
3. `src/lib/documents/extraction.ts` - Dynamic imports
4. `src/app/api/documents/[id]/extract/route.ts` - Dynamic imports

5. next.config.js - Webpack externals

## Testing

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- ✓ Local build completed successfully
- ✓ No canvas/DOMMatrix errors
- ✓ Page data collection passed

## Deployment

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Ready for production deployment to Render.

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**Status:** ✓ Fixed and Tested

**Date:** December 20, 2025