Terraform Outputs Debugging Journey

What Broke

Terraform gave 'Reference to undeclared resource' errors. Our staging environment outputs tried to directly reference resources like aws_s3_bucket.site and aws_cloudfront_distribution.dist. But these resources don't exist in the staging root — they only exist inside the child module (cloudfront_oac).

Why It Broke

In Terraform, the root module (like staging) can't directly access child resources. The child module must explicitly export those values using outputs.tf. Then the root module can read them through module... Since we skipped this, Terraform couldn't find the resources.

The Fix

1. Inside the module (cloudfront_oac), we added outputs.tf to export: - s3_bucket_name - cloudfront_distribution_id - cdn_url 2. Inside staging, we rewired outputs.tf to reference module.static_site.s3_bucket_name, module.static_site.cloudfront_distribution_id, and module.static_site.cdn_url instead of trying to reference aws_* resources directly.

The Outcome

After fixing, Terraform applied successfully. Outputs now appear correctly: - s3_bucket_name $\rightarrow$ private site bucket - cloudfront_distribution_id $\rightarrow$ CloudFront distribution ID - cdn_url $\rightarrow$ HTTPS endpoint for the CDN This lets us sync site files to S3, invalidate CloudFront, and run smoke tests.

Key Lesson

Parent modules can only see what child modules export. Outputs are the 'contract' between modules. Never reference child resources directly from the parent.