

# Terraform Module: Basic VPC

This module creates a standard, best-practice Virtual Private Cloud (VPC) on AWS. It is designed to provide a foundational network for other infrastructure components.

The module provisions the following resources: \* A VPC with DNS support enabled. \* Public and private subnets distributed across at least two Availability Zones for high availability. \* An Internet Gateway to allow internet access for resources in the public subnets. \* An Elastic IP and a NAT Gateway to allow resources in the private subnets to initiate outbound internet traffic. \* Route tables and associations for both public and private subnets.

## Usage

```
module "basic_vpc" {
  source = "../modules/basic_vpc"

  project_name      = "my-project"
  environment       = "dev"
  vpc_cidr_block    = "10.0.0.0/16"
  public_subnet_cidrs = ["10.0.1.0/24", "10.0.2.0/24"]
  private_subnet_cidrs = ["10.0.101.0/24", "10.0.102.0/24"]

  tags = {
    Owner = "team-alpha"
  }
}
```

## Requirements

Name	Version
terraform	>= 1.0
aws	~> 6.0

## Providers

Name	Version
aws	~> 6.0

## Inputs

Name	Description	Type	Default	Required
project_name	The name of the project. Used for naming resources.	string	n/a	yes
environment	The deployment environment (e.g., 'dev', 'test', 'prod'). Used for naming and tagging.	string	n/a	yes
vpc_cidr_block	The CIDR block for the VPC (e.g., '10.0.0.0/16').	string	n/a	yes
public_subnet_cidrs	A list of CIDR blocks for the public subnets. Must be at least two.	list(string)	n/a	yes
private_subnet_cidrs	A list of CIDR blocks for the private subnets. Must be at least two.	list(string)	n/a	yes
tags	A map of tags to assign to all resources created by this module.	map(string)	{}	no

## Outputs

Name	Description
vpc_id	The ID of the created VPC.
public_subnet_ids	A list of IDs of the created public subnets.
private_subnet_ids	A list of IDs of the created private subnets.

Name	Description
<code>internet_gateway_id</code>	The ID of the created Internet Gateway.
<code>nat_gateway_id</code>	The ID of the created NAT Gateway.

## Resources

Name	Type
<code>aws_vpc.main</code>	resource
<code>aws_internet_gateway.main</code>	resource
<code>aws_subnet.public</code>	resource
<code>aws_subnet.private</code>	resource
<code>aws_eip.nat_gateway_eip</code>	resource
<code>aws_nat_gateway.main</code>	resource
<code>aws_route_table.public</code>	resource
<code>aws_route_table_association.public</code>	resource
<code>aws_route_table.private</code>	resource
<code>aws_route_table_association.private</code>	resource
<code>aws_availability_zones.available</code>	data source