**Infrastructure Automation Test Framework – Test Design / Plan**   
**Integration Test**   
  
Verify the seamless integration of Terraform configurations with various infrastructure components, ensuring a stable and scalable environment.

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| **Test ID** | **Description** | **Input** | **Expected** | **AI – AutoFix** |
| intgResourceVPCTest1 | Create VPC with valid CIDR block | Apply Terraform config, verify VPC creation | VPC created with correct CIDR block. | * Update the right provider version * Update the right region |
| intgResourceSubnetTest2 | Create subnet with valid CIDR block and VPC association | Apply Terraform config, verify subnet creation | Subnet created with correct CIDR block and VPC | Same as above |
| intgResourceEC2Test3 | Create EC2 / VM instance with valid AMI and security group | Apply Terraform config, verify EC2 / VM instance creation | EC2 / VM instance created with correct AMI and security group | * Fix the Naming Convention * Fix any difference in Image shape. * Fix Image Type   Fix any exposed IP / Ports |
| intgDBConfigTest1 | Verify Configuration database engine and version | Apply Terraform config, verify database engine and version | Created Database engine and version match expected configuration | Same as above |
| intgDBConfigTest2 | Database instance type and storage | Apply Terraform config, verify database instance type and storage | Database instance type and storage match expected configuration | * Update the right instance type * Update the right VPC config * Update the right subnet config Fix the naming convention. * Fix if any deviation is policies |
| intgDBConfigTest3 | Verify database encryption | Apply Terraform config, verify database encryption | Database encryption enabled and configured correctly | * Update the right variable type |
| intgDBConfigTest4 | Verify database backup configuration | verify database backup configuration | Database backup configuration matches expected values |  |
| intgServicesTest1 | Successful deployment of microservice | Verify Microservice deployed successfully | All Service ports are up and running |  |
| intgServicesTest2 | Validate service endpoint | Send request to service endpoint, verify response | Received Expected response from the Service | NA |
| intgServicesTest3 | Validate service functionality | Test service functionality, verify expected behavior | Service Functionalities are working fine. | NA |
| intgServicesTest4 | Validate service scalability | Check if the service scales up / down | Service scales as expected |  |
| intgServicesTest5 | Validate inter-service communication | Test communication between services, verify expected behavior | Services communicate as expected. |  |
| intgServicesTest6 | Validate API gateway integration | Test API gateway integration, verify expected behavior | API gateway integrates correctly with microservices |  |
| intgServicesTest7 | Validate authentication and authorization | Test authentication and authorization, verify expected behavior | Authentication and authorization work correctly |  |
| intgServicesTest8 | Validate data encryption | Test data encryption, verify expected behavior | Data encrypted correctly |  |