Amazon Web Services
Data Engineering Immersion Day

Database Migration Services Student Setup Instructions
Jun 2019

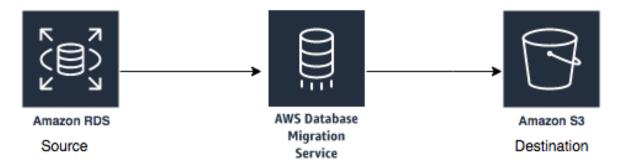**Table of Contents**

Introduction

This guide helps students set up the pre-environment for the AWS Database Migration Service (AWS DMS) lab.

AWS DMS required source and destination as shown below:

Your instructor will provide you source database details during main lab to configure source endpoint. If you ran instructor lab to setup your own instance of Postgres database then use instance endpoint from instructor lab.
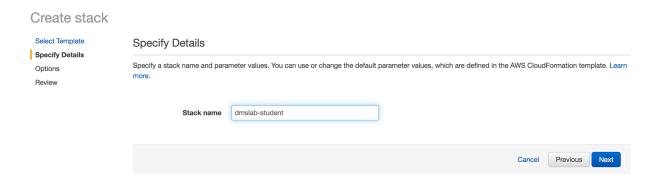
In this lab, you will complete the following pre-requisite using AWS CloudFormation template deployment:

1. Create required VPC setup for AWS DMS instance.
2. Create Amazon S3 bucket for destination end point configuration.
3. Create required Amazon S3 bucket policy to put data by AWS DMS service.
4. Create Glue Service Role to use in later hands-on workshop.

Create the Student Environment

Make sure you select the us-east-1 (Virginia) region

1. Sign in to the AWS console where you will host the student environment.
2. Navigate to the AWS CloudFormation page.
3. Launch a new stack with the AWS CloudFormation template DMSlab_student_CFN.json provided by your instructor.

4. Launch the stack. It may take up to 5 minutes for the stack to launch.

5. Click in the Output tab and take note of value for BucketName , GlueLabRole and DMSLabRoleS3 , which you are going to use in future labs.

Also take note of resource tab where you have information regarding VPC , Subnet etc.

Overview	Outputs	Resources	Events	Template	Parameters	Tags	Stack Policy	Change Sets	Rollback Triggers

Logical ID	Physical ID	Type
DMSLabRoleS3	dmslab-student-DMSLabRoleS3-8DVW2RR7J7QZ	AWS::IAM::Role
DMSLabS3Bucket	dmslab-student-dmslabs3bucket-woti4bf73cw3	AWS::S3::Bucket
DMSLabS3Policy	dmsla-DMSL-1XLYNW9N95OXV	AWS::IAM::Policy
GlueLabRole	dmslab-student-GlueLabRole-ZOQDII7JTBUM	AWS::IAM::Role
acl1	dmslab-acl1-1PBEUVCQ3DKVP	AWS::EC2::NetworkAclEntry
acl2	dmslab-acl2-2EOXT35DTU3I	AWS::EC2::NetworkAclEntry
dchpassoc1	dmsla-dchpa-ZVPQ6V2IH9DJ	AWS::EC2::VPCDHCPOptionsAssociation
dmslabstudentacl	acl-096e7d6e4109cf0f5	AWS::EC2::NetworkAcl
dmslabstudentigw	igw-06753c3e6ef768d38	AWS::EC2::InternetGateway
dmslabstudentrtable	rtb-06228f5cafe7e4e3c	AWS::EC2::RouteTable
dmslabstudentsubnet1	subnet-006522a5bbf92c0c5	AWS::EC2::Subnet
dmslabstudentsubnet2	subnet-05f628a564cf25622	AWS::EC2::Subnet
dmslabstudentsubnet3	subnet-097495655d22962d2	AWS::EC2::Subnet
dmslabstudentvpc	vpc-0314e829ba12d9481	AWS::EC2::VPC
dopt1b68e47c	dopt-01b84286842d0a7a1	AWS::EC2::DHCPOptions
egress1	dmslab-student-egress1-26SSMWHLTXIU	AWS::EC2::SecurityGroupEgress
gw1	dmslab-gw1-YA21IQHBTMS8	AWS::EC2::VPCGatewayAttachment
ingress1	ingress1	AWS::EC2::SecurityGroupIngress
route1	dmsla-route-31EZ4V4J38YX	AWS::EC2::Route
sgdefault	sg-09f4cd5b75de9b21a	AWS::EC2::SecurityGroup
subnetacl1	aclassoc-003eb40a5ba88681d	AWS::EC2::SubnetNetworkAclAssociation
subnetacl2	aclassoc-0526e1616c5374801	AWS::EC2::SubnetNetworkAclAssociation

Begin the main AWS DMS lab after the stack is launched.

Appendix: AWS CloudFormation Template

The AWS CloudFormation template is below. **This template only works in the us-east-1 region.**

Copy and paste this template into a student_dmslab.json file on your computer and save. Select that file in AWS CloudFormation for Step 3.

```
{
  "AWSTemplateFormatVersion": "2010-09-09",
  "Outputs": {
    "DMSLabRoleS3": {
      "Description": "The DMS serivce role",
                "Value": {
```

```
                    "Ref": "DMSLabRoleS3"
                }
            },
            "GlueLabRole": {
                "Description": "The Glue service role",
                "Value": {
                    "Ref": "GlueLabRole"
                }
        },
    "BucketName" : {
     "Description" : "S3 Bucket that was created" ,
     "Value" : {
          "Ref" : "DMSLabS3Bucket"
        }
      }
        },
    "Resources": {
     "dmslabstudentvpc": {
       "Type": "AWS::EC2::VPC",
       "Properties": {
        "CidrBlock": "10.0.0.0/24",
        "InstanceTenancy": "default",
        "EnableDnsSupport": "true",
        "EnableDnsHostnames": "false",
        "Tags": [
         {
           "Key": "Name",
           "Value": "dmslstudv1"
         }
        ]
       }
     },
     "dmslabstudentsubnet1": {
       "Type": "AWS::EC2::Subnet",
       "Properties": {
        "CidrBlock": "10.0.0.0/26",
        "AvailabilityZone": "us-east-1a",
        "VpcId": {
         "Ref": "dmslabstudentvpc"
        },
        "Tags": [
         {
           "Key": "Name",
           "Value": "dmslstudv1"
         }
```

```
      ]
    }
  },
  "dmslabstudentsubnet2": {
    "Type": "AWS::EC2::Subnet",
    "Properties": {
      "CidrBlock": "10.0.0.128/26",
      "AvailabilityZone": "us-east-1c",
      "VpcId": {
        "Ref": "dmslabstudentvpc"
      },
      "Tags": [
        {
          "Key": "Name",
          "Value": "dmslstudv1"
        }
      ]
    }
  },
  "dmslabstudentsubnet3": {
    "Type": "AWS::EC2::Subnet",
    "Properties": {
      "CidrBlock": "10.0.0.64/26",
      "AvailabilityZone": "us-east-1b",
      "VpcId": {
        "Ref": "dmslabstudentvpc"
      },
      "Tags": [
        {
          "Key": "Name",
          "Value": "dmslstudv1"
        }
      ]
    }
  },
  "dmslabstudentigw": {
    "Type": "AWS::EC2::InternetGateway",
    "Properties": {
      "Tags": [
        {
          "Key": "Name",
          "Value": "DMSLab-IGW"
        }
      ]
    }
```

```
  },
  "dopt1b68e47c": {
    "Type": "AWS::EC2::DHCPOptions",
    "Properties": {
      "DomainName": "ec2.internal",
      "DomainNameServers": [
        "AmazonProvidedDNS"
      ]
    }
  },
  "dmslabstudentacl": {
    "Type": "AWS::EC2::NetworkAcl",
    "Properties": {
      "VpcId": {
        "Ref": "dmslabstudentvpc"
      }
    }
  },
  "dmslabstudentrtable": {
    "Type": "AWS::EC2::RouteTable",
    "Properties": {
      "VpcId": {
        "Ref": "dmslabstudentvpc"
      }
    }
  },
  "sgdefault": {
    "Type": "AWS::EC2::SecurityGroup",
    "Properties": {
      "GroupDescription": "default VPC security group",
      "VpcId": {
        "Ref": "dmslabstudentvpc"
      }
    }
  },
  "acl1": {
    "Type": "AWS::EC2::NetworkAclEntry",
    "Properties": {
      "CidrBlock": "0.0.0.0/0",
      "Egress": "true",
      "Protocol": "-1",
      "RuleAction": "allow",
      "RuleNumber": "100",
      "NetworkAclId": {
        "Ref": "dmslabstudentacl"
```

```
    }
   }
  },
  "acl2": {
   "Type": "AWS::EC2::NetworkAclEntry",
   "Properties": {
    "CidrBlock": "0.0.0.0/0",
    "Protocol": "-1",
    "RuleAction": "allow",
    "RuleNumber": "100",
    "NetworkAclId": {
      "Ref": "dmslabstudentacl"
    }
   }
  },
  "subnetacl1": {
   "Type": "AWS::EC2::SubnetNetworkAclAssociation",
   "Properties": {
    "NetworkAclId": {
      "Ref": "dmslabstudentacl"
    },
    "SubnetId": {
      "Ref": "dmslabstudentsubnet3"
    }
   }
  },
  "subnetacl2": {
   "Type": "AWS::EC2::SubnetNetworkAclAssociation",
   "Properties": {
    "NetworkAclId": {
      "Ref": "dmslabstudentacl"
    },
    "SubnetId": {
      "Ref": "dmslabstudentsubnet1"
    }
   }
  },
  "subnetacl3": {
   "Type": "AWS::EC2::SubnetNetworkAclAssociation",
   "Properties": {
    "NetworkAclId": {
      "Ref": "dmslabstudentacl"
    },
    "SubnetId": {
      "Ref": "dmslabstudentsubnet2"
```

```
      }
     }
    },
    "gw1": {
     "Type": "AWS::EC2::VPCGatewayAttachment",
     "Properties": {
      "VpcId": {
       "Ref": "dmslabstudentvpc"
      },
      "InternetGatewayId": {
       "Ref": "dmslabstudentigw"
      }
     }
    },
    "subnetroute1": {
     "Type": "AWS::EC2::SubnetRouteTableAssociation",
     "Properties": {
      "RouteTableId": {
       "Ref": "dmslabstudentrtable"
      },
      "SubnetId": {
       "Ref": "dmslabstudentsubnet1"
      }
     }
    },
    "subnetroute3": {
     "Type": "AWS::EC2::SubnetRouteTableAssociation",
     "Properties": {
      "RouteTableId": {
       "Ref": "dmslabstudentrtable"
      },
      "SubnetId": {
       "Ref": "dmslabstudentsubnet3"
      }
     }
    },
    "subnetroute4": {
     "Type": "AWS::EC2::SubnetRouteTableAssociation",
     "Properties": {
      "RouteTableId": {
       "Ref": "dmslabstudentrtable"
      },
      "SubnetId": {
       "Ref": "dmslabstudentsubnet2"
      }
```

```json
  }
},
"route1": {
  "Type": "AWS::EC2::Route",
  "Properties": {
    "DestinationCidrBlock": "0.0.0.0/0",
    "RouteTableId": {
      "Ref": "dmslabstudentrtable"
    },
    "GatewayId": {
      "Ref": "dmslabstudentigw"
    }
  },
  "DependsOn": "gw1"
},
"dchpassoc1": {
  "Type": "AWS::EC2::VPCDHCPOptionsAssociation",
  "Properties": {
    "VpcId": {
      "Ref": "dmslabstudentvpc"
    },
    "DhcpOptionsId": {
      "Ref": "dopt1b68e47c"
    }
  }
},
"ingress1": {
  "Type": "AWS::EC2::SecurityGroupIngress",
  "Properties": {
    "GroupId": {
      "Ref": "sgdefault"
    },
    "IpProtocol": "-1",
    "SourceSecurityGroupId": {
      "Ref": "sgdefault"
    },
    "SourceSecurityGroupOwnerId": "105763911922"
  }
},
"egress1": {
  "Type": "AWS::EC2::SecurityGroupEgress",
  "Properties": {
    "GroupId": {
      "Ref": "sgdefault"
    },
```

```
    "IpProtocol": "-1",
    "CidrIp": "0.0.0.0/0"
  }
},
"DMSLabS3Bucket": {
  "Type": "AWS::S3::Bucket"
},
"DMSLabS3Policy": {
  "Type": "AWS::IAM::Policy",
  "Properties": {
    "PolicyName": "DMSLabS3Policy",
    "PolicyDocument": {
      "Version": "2012-10-17",
      "Statement": [
        {
          "Effect": "Allow",
          "Action": [
            "s3:GetObject",
            "s3:PutObject",
            "s3:DeleteObject"
          ],
          "Resource": [
                {
                  "Fn::Join": [
                      "",
                        [
                          {
                            "Fn::GetAtt": [
                              "DMSLabS3Bucket",
                               "Arn"
                            ]
                          },
                          "/*"
                        ]
                  ]
                }
            ]
        },
      {
         "Effect": "Allow",
            "Action": [
              "s3:ListBucket"
             ],
               "Resource": [
                 {
```

```
                        "Fn::GetAtt": [
                          "DMSLabS3Bucket",
                          "Arn"
                        ]
                      }
                    ]
                  }
                ]
              },
          "Roles": [
            {
              "Ref": "DMSLabRoleS3"
            },
            {
              "Ref": "GlueLabRole"
            }
          ]
        }
      },
      "DMSLabRoleS3": {
        "Type": "AWS::IAM::Role",
        "Properties": {
          "AssumeRolePolicyDocument": {
            "Version": "2012-10-17",
            "Statement": [
              {
                "Effect": "Allow",
                "Principal": {
                  "Service": [
                    "dms.amazonaws.com"
                  ]
                },
                "Action": [
                  "sts:AssumeRole"
                ]
              }
            ]
          },
          "Path": "/"
        }
      },
      "GlueLabRole": {
        "Type": "AWS::IAM::Role",
        "Properties": {
          "AssumeRolePolicyDocument": {
```

```
      "Version": "2012-10-17",
      "Statement": [
       {
         "Effect": "Allow",
         "Principal": {
           "Service": [
             "glue.amazonaws.com"
           ]
         },
         "Action": [
           "sts:AssumeRole"
         ]
       }
      ]
    },
    "Path": "/service-role/",
    "ManagedPolicyArns": [
      "arn:aws:iam::aws:policy/service-role/AWSGlueServiceRole"
    ]
   }
  }
 }
}
```