



DEPLOYMENT QUICK GUIDE

# NDI<sup>®</sup> Bridge Transcoder AMI Quick Deployment Guide

Unlock the capabilities of remote and live event video production with the NDI<sup>®</sup> Bridge AMI Quick Deployment Guide, configured by Vizrt. This guide simplifies the process of launching the NDI<sup>®</sup> Bridge on AWS, tailored to integrate seamlessly with TriCaster Vectar setups. Ideal for broadcasters, live event producers, and remote production teams, this guide helps you navigate through setting up the NDI<sup>®</sup> Bridge to enhance connectivity and streamline your production operations.

SEPTEMBER 2024





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# 1 Welcome

This guide is crafted to streamline the setup of your NDI® Bridge using the AWS Marketplace AMI, ensuring quick and efficient deployment. Whether integrating NDI® Bridge into your existing AWS infrastructure or establishing a new live production setup, the steps provided here will guide you through a hassle-free installation.

## Before You Begin:

- Ensure you have an active AWS account. New to AWS? Check out the [AWS Getting Started Resource Center](#) for guidance.
- Familiarize yourself with basic AWS services concepts to smoothly follow along with the deployment steps.

## About This Guide:

- **Quick Setup:** Ready to get started? You'll be operational in just about 30 minutes! Perfect for grabbing a coffee while setting up.
- **Version Notice:** This AMI is configured by Vizrt and complements our suite of products, including TriCaster® Vectar. It is specifically designed for use within Vizrt live production workflows to enhance integration and performance when used alongside other Vizrt solutions. This tool is not provided directly by NDI.

For more comprehensive information and best practices beyond this quick setup, refer to the full **TriCaster® Vectar AWS Deployment Guide** [here](#). It includes detailed sections on deployment, security, and maintenance to help you maximize your experience.



## 2 Prerequisites

Before diving into the deployment of NDI Bridge via AWS Marketplace, there are a few things you'll need to ensure are in place. This chapter outlines the essential requirements needed to get started.

### 2.1 AWS Account Requirements

- **AWS Account:** You must have an active AWS account. If you don't have one, sign up at [aws.amazon.com](https://aws.amazon.com).
- **Permissions:** Ensure you have administrative access or sufficient permissions within your AWS account to create and manage EC2 instances, AMIs, and related resources.

### 2.2 Knowledge and Skills Required

- **AWS Basics:** Familiarity with navigating the AWS Management Console is crucial. You should know how to locate and use services like EC2 (Elastic Compute Cloud) and IAM (Identity and Access Management).
- **Networking Fundamentals:** Understanding basic networking concepts such as subnets, security groups, and IP addressing will be helpful.

### 2.3 Software and Tools Preparations

- **Web Browser:** Ensure you have a modern web browser installed, as you will manage AWS services through the AWS Management Console, which is web-based.
- **Secure Network:** Ensure your internet connection is secure and stable, as you'll be setting up and managing cloud resources.
- **NDI Tools:** Ensure the latest version of [NDI Tools](#) is installed on your local machine or any machine intended for use as a transcoder.
- **NICE DCV Client Installation:** To access your NDI Bridge instance remotely and manage its graphical user interface, you will need to install the NICE DCV client. Download and install the client software from the official AWS page: [NICE DCV Download](#).



## 2.4 AWS Service Quotas

- **GPU Instance Availability:** NDI Bridge requires EC2 instances equipped with GPUs. Check your AWS Service Quotas to ensure you can launch EC2 instances with GPUs, such as the G and VT instance families.
- **Adjust Quotas if Necessary:** If the default quotas do not meet your needs, you may need to request an increase. This can be done through the AWS Management Console under the Service Quotas section. Keep in mind that approval might take some time, so it's advisable to manage this well before your planned deployment.

## 2.5 Security Responsibilities and Best Practices

The deployment process involves setting up various AWS resources. While this guide includes security tips and recommendations, it is ultimately your responsibility to ensure the security of your cloud resources. We strongly advise referring to the AWS security documentation and best practices for each resource deployed in the TriCaster Vectar AMI.

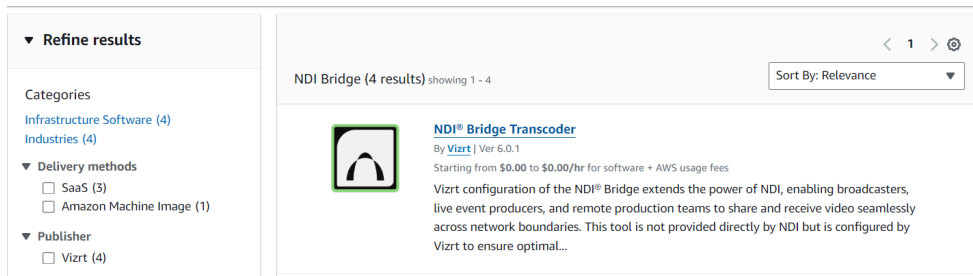


## 3 AMI Deployment Process

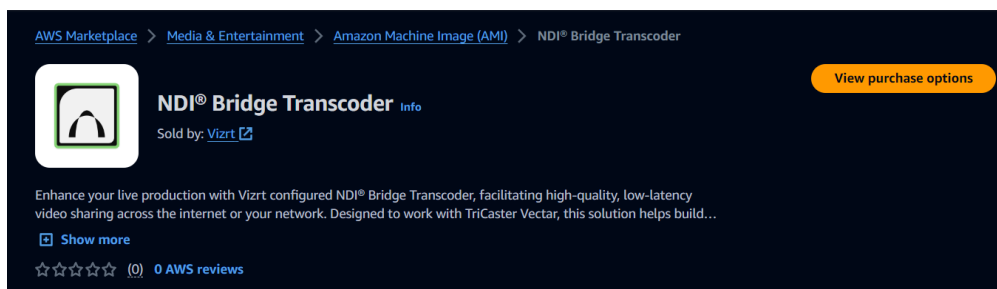
Deploying NDI Bridge from the AWS Marketplace is straightforward. This chapter walks you through each step from finding the AMI to launching your EC2 instance with NDI Bridge installed.

### 3.1 Accessing the AWS Marketplace

- **Search for NDI Bridge:** Open the AWS Management Console, go to AWS Marketplace, and search for "NDI Bridge." Select the AMI provided by Vizrt.



- **Review AMI Details:** On the product page, review the AMI details and click "View purchase options."



[Overview](#) | [Pricing](#) | [Legal](#) | [Usage](#) | [Resources](#) | [Support](#) | [Reviews](#)

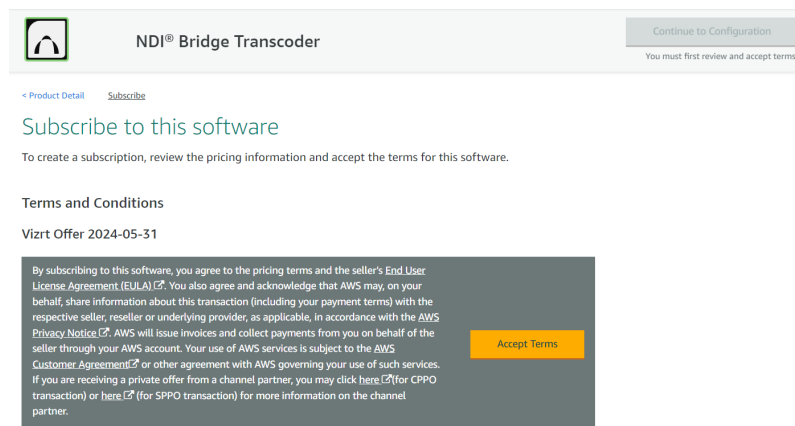
### Overview

Vizrt configuration of the NDI® Bridge extends the power of NDI, enabling

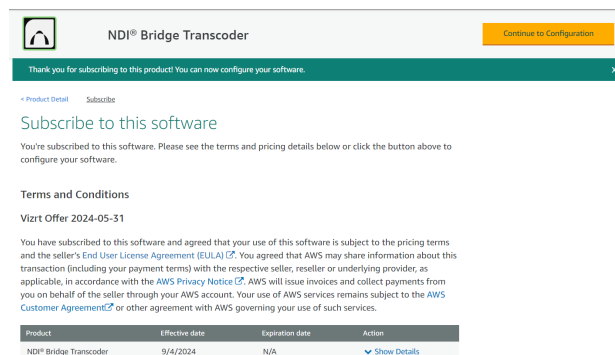


### 3.2 Selecting the NDI Bridge AMI

- **Subscribe:** Click on 'Accept Terms'. After subscribing, wait momentarily for the AMI to become available for configuration.



- **Proceed with Configuration:** Click on 'Continue to Configuration' to begin setting up your instance.



### 3.3 Configuring Instance Details

- **Choose the Version:** Select the desired software version of NDI Bridge for deployment.
- **Select the Region:** Choose the AWS region nearest to your location to reduce latency and enhance performance.



- **Continue to Launch:** Click 'Continue to Launch' to proceed with configuring your instance, including network and security settings

NDI® Bridge Transcoder Continue to Launch

< Product Detail Subscribe Configure

### Configure this software

Choose a fulfillment option and software version to launch this software.

Fulfillment option  
64-bit (x86) Amazon Machine Image (AMI)

Software version  
6.0.1 (Sep 03, 2024)

Region  
US East (N. Virginia)

Use of Local Zones or WaveLength infrastructure deployment may alter your final pricing.

Ami id: ami-04290ea9b071d89d1

Ami Alias: /aws/service/marketplace/prod-eyladahk2on2/6.0.1 [Learn More](#) New

Product Code: dp98lz7za9p1fv6yw80k3g9xco

Release notes (updated September 3, 2024)

**Pricing information**

This is an estimate of typical software and infrastructure costs based on your configuration. Your actual charges for each statement period may differ from this estimate.

**Software Pricing**

NDI® Bridge Transcoder \$0 /hr  
running on g4dn.2xlarge

**Infrastructure Pricing**

EC2: 1 \* g4dn.2xlarge  
Monthly Estimate: \$806.00/month

- **Confirm Launch Method:** Verify that 'Launch from Website' is selected in the 'Choose Action' dropdown to continue with the web-based deployment.
- **Select EC2 Instance Type:** Choose an EC2 instance type suitable for your needs. For guidance on selecting the appropriate instance, refer to the 'Optimizing EC2 Instances' section in the TriCaster® Vectar AWS Deployment Guide. If unsure, select the recommended instance type.

NDI® Bridge Transcoder

< Product Detail Subscribe Configure Launch

### Launch this software

Review the launch configuration details and follow the instructions to launch this software.

**Configuration details**

Fulfillment option: 64-bit (x86) Amazon Machine Image (AMI)  
NDI® Bridge Transcoder  
running on g4dn.2xlarge

Software version: 6.0.1

Region: US East (N. Virginia)

[Usage instructions](#)

**Choose Action**

Launch from Website Choose this action to launch from this website

**EC2 Instance Type**

g4dn.2xlarge

Memory: 32 GiB  
CPU: 8 virtual cores, plus 1 x NVIDIA T4 GPU (16GB)  
Storage: 225 GiB - EBS and local NVMe SSD  
Network Performance: Up to 25 Gbps



### 3.4 Network and Security Settings

#### Configure Virtual Private Cloud (VPC)

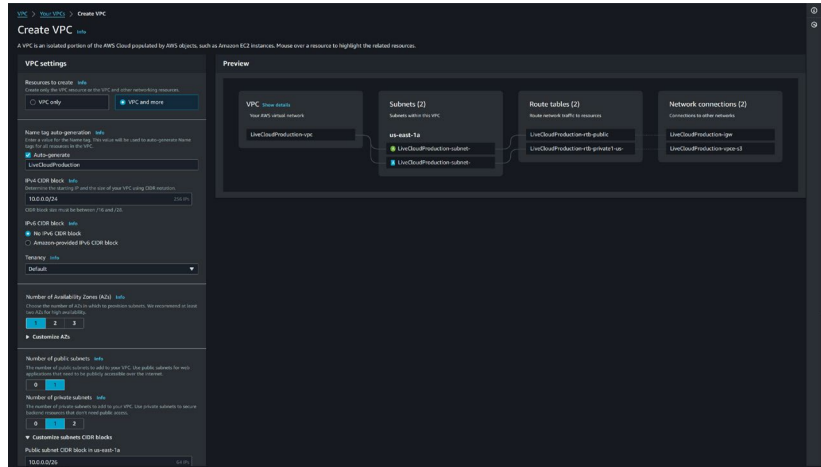
When deploying NDI Bridge, decide whether to use an existing VPC or establish a new one based on whether you prefer integrating with your current network infrastructure or creating a dedicated environment for live production.

- **Select an Existing VPC:** To deploy NDI Bridge within an existing network, choose the appropriate VPC from the dropdown list during the AWS Marketplace setup.

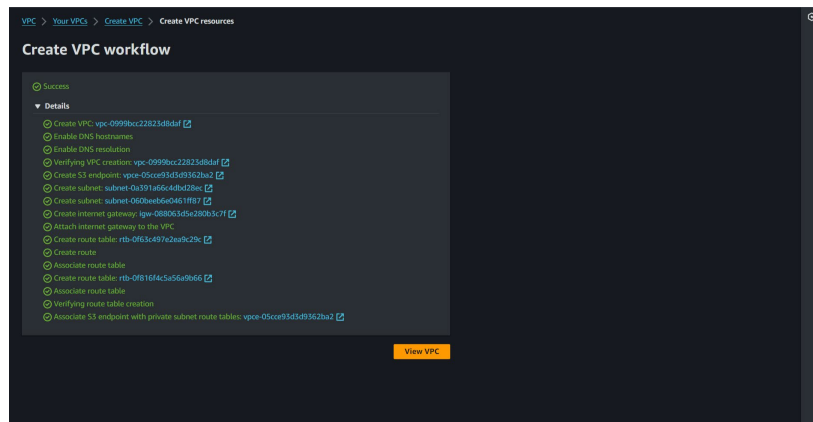
To set up a new VPC for your NDI Bridge deployment, follow these detailed steps to ensure proper configuration:

- **Navigate to the VPC section:** click 'Create a VPC in EC2' to access the VPC dashboard in the AWS Management Console.
- **Begin VPC creation:** Click on 'Create VPC' at the top right of the dashboard.
- **Proceed with setup:** select 'VPC and More' to continue with the configuration process.
- **Name your VPC:** Enter a descriptive name like 'LiveCloudProduction' for easy identification.
- **Set the IPv4 CIDR block:** Assign a CIDR block such as 10.0.0.0/24 to the VPC. This size is typically adequate for most needs, unless a larger or segmented network is necessary.
- **Select Availability Zones:** Choose one Availability Zone for your VPC.
- **Define Public Subnets:** Input 10.0.0.0/26 for the public subnet's CIDR block within your chosen Availability Zone.

- Review and confirm your settings to ensure they are correct before proceeding.



- Click **Create VPC** to establish your new VPC with the specified configurations.



- Click on 'View VPC' to return to the VPC dashboard.
- Return to AWS Marketplace and refresh the VPC list. Select your newly created VPC from the dropdown menu.



- Choose the newly created public subnet from the dropdown menu.

**NDI® Bridge Transcoder**

**VPC Settings**  
\* indicates a default vpc  
vpc-0999bcc22823d8daf   
[Create a VPC in EC2](#)

**Subnet Settings**  
subnet-0a391a66c4dbd28ec (us-east-1a)  IPv4 CIDR block: 10.0.0.0/26  
[Create a subnet in EC2](#)  
(Ensure you are in the selected VPC above)

## Configure Security Group

Security groups serve as virtual firewalls that manage the inbound and outbound traffic for your EC2 instance.

- **Use Seller Settings:** click 'Create New Based on Seller Setting'.
- **Name and Describe Your Security Group:** Assign a name like “ndibrIDGE-VIDEOTRANSCODER” and provide a clear description, such as 'Vizrt NDI Bridge Marketplace AMI', to identify the group's purpose.
- **Customize IP Restrictions:** Enhance security by limiting access to the security group. Restrict access to your current IP or specify a custom list of IPs, ensuring only authorized users can connect to your instance."

**NDI® Bridge Transcoder**

Create new based on seller settings  
A new security group will be generated by AWS Marketplace. It is based on recommended settings for NDI® Bridge Transcoder version 5.0.1.

Name your security group  
ndibrIDGE-VIDEOTRANSCODER

Description  
Vizrt NDI Bridge Marketplace AMI

Connection Method	Protocol	Port Range	Source IP or Group
RDP	tcp	3389	Anywhere <input type="button" value="0.0.0.0/0"/>
HTTPS*	tcp	8443	Anywhere <input type="button" value="0.0.0.0/0"/>
HTTPS*	udp	8443	My Ip <input type="button" value="0.0.0.0/0"/>
	Custom IP		<input type="button" value="0.0.0.0/0"/>
HTTPS*	udp	5900	Anywhere <input type="button" value="0.0.0.0/0"/>
	tcp	5959	Anywhere <input type="button" value="0.0.0.0/0"/>
	tcp	5960-8999	Anywhere <input type="button" value="0.0.0.0/0"/>
	udp	5960-8999	Anywhere <input type="button" value="0.0.0.0/0"/>

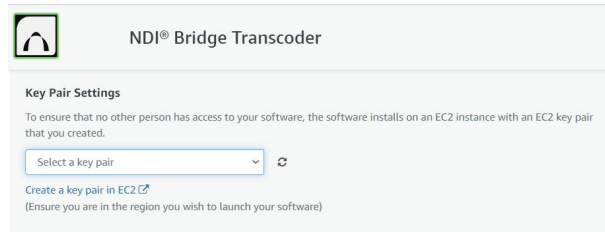
Rules with source of 0.0.0.0/0 allows all IP addresses to access your instance. We recommend limiting access to only known IP addresses.

## Setting Up Key Pairs

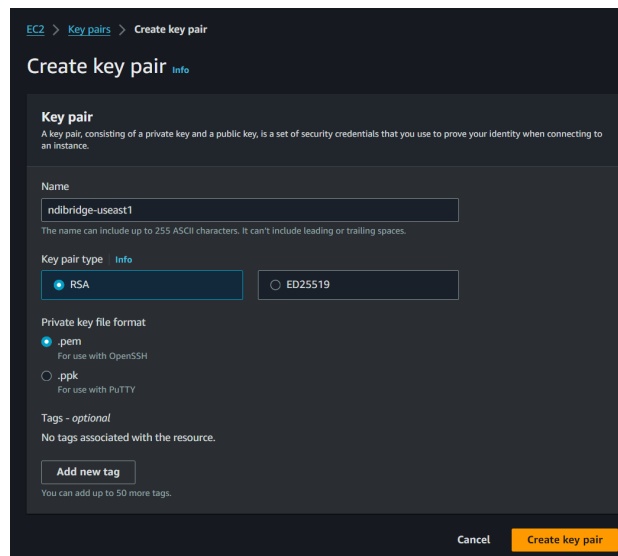


Key pairs are crucial for secure access to your EC2 instances, used primarily to decrypt the administrator password.

- **Access Key Pair Creation:** Click 'Create a key pair in EC2' to open the Key Pairs section in the EC2 console."



- **Region Selection:** Ensure you're in the correct AWS region for deploying NDI Bridge, as key pairs are specific to the region they're created in.
- **Create Your Key Pair:** Click on 'Create key pair'. Name it descriptively, such as 'ndibridge-useast1', reflecting its purpose and region.
- **Select File Format:** Choose the .pem format from the available options.
- **Optional Tagging:** Add tags if needed to organize and easily identify your AWS resources and then click **Create Key pair**




- **Download Key Pair:** After creation, immediately download the .pem file. Store this file securely as AWS does not keep a copy, and it cannot be downloaded again.



- **Refresh Key Pair List:** After creating and downloading your key pair, go back to the AWS Marketplace where you started the instance setup.
- **Select the New Key Pair:** Refresh the list to see your newly created key pair. Choose the new key pair, named 'ndibridge-useast1', from the dropdown menu.

### 3.5 Launching the Instance

- **Review Configuration:** Double-check all settings including the EC2 instance type, VPC, subnet, and security group to confirm they meet your requirements.
- **Initiate Launch:** Once all configurations are verified, click 'Launch'.



## NDI® Bridge Transcoder

**Congratulations! An instance of this software is successfully deployed on EC2!**

AMI ID: [ami-04290ea9b071d89d1](#) ([View Launch Configuration Details](#))

You can view this instance on [EC2 Console](#). You can also view all instances on [Your Software](#). Software and AWS hourly usage fees apply when the instance is running and will appear on your monthly bill.

You can launch this configuration again below or go to the [configuration page](#) to start a new one.

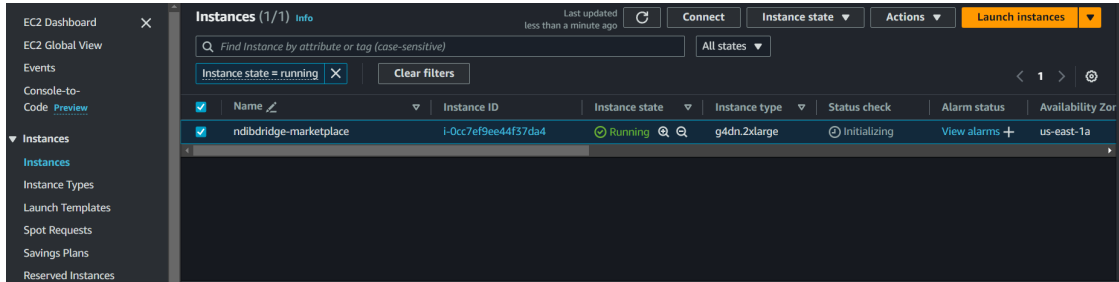
Configuration details	
Fulfillment option	64-bit (x86) Amazon Machine Image (AMI) NDI® Bridge Transcoder <i>running on g4dn.2xlarge</i>
Software version	6.0.1
Region	US East (N. Virginia)

[Usage instructions](#)

- **Navigate to EC2 Dashboard:** Once the instance launch is initiated, go to the AWS Console and select the EC2 service.
- **View Instances:** Click on 'Instances' to see a list of all EC2 instances, including the newly launched one.
- **Name Your Instance:** Select your new instance, click the 'Name' column, and assign a clear name like 'ndibridge-marketplace' to help distinguish it from other resources.



- **Monitor Deployment Status:** Once you've initiated the launch, keep an eye on the progress of your EC2 instance in the AWS EC2 Management Console. The instance may take a few minutes to become fully operational.

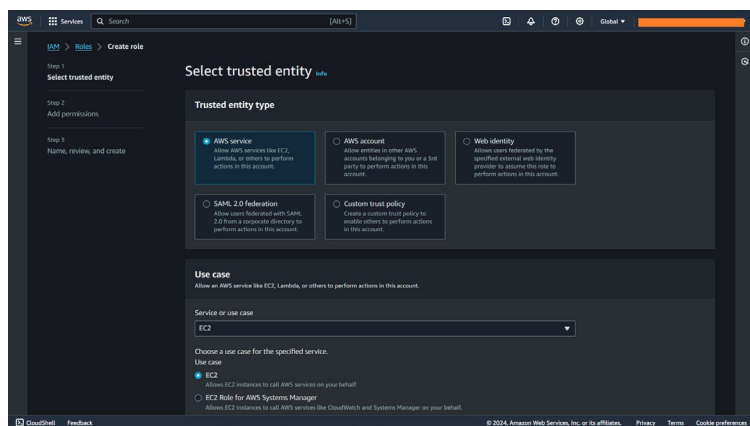


## 4 Initial Setup and Configuration

### 4.1 Associating an IAM Profile for Nice DCV Licensing

Setting up the proper IAM profile is crucial for licensing Nice DCV on your Amazon EC2 instance. Follow these steps to ensure the correct IAM profile is associated with your EC2 instance (reference [NICE DCV licensing requirements](#)):

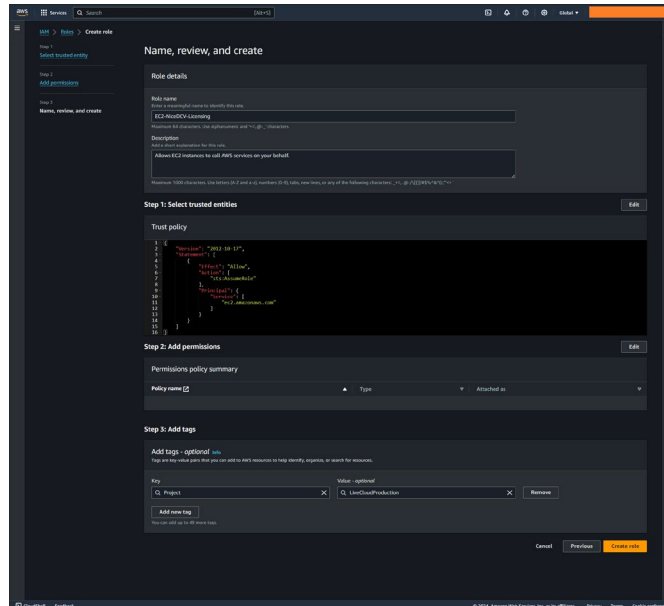
1. **Stop the Running Instance:** Access the EC2 console in your AWS Management Console. Locate and select the EC2 instance running NDI Bridge. Using the Instance State button, select Stop instance to halt the instance.
2. **Create an IAM Role:** If an existing IAM role meets the requirements, as outlined in the Nice DCV Administrator Guide, you may use that. Otherwise, proceed to create a new one.
  - Navigate to the **IAM** service in the AWS Console.
  - Select '**Roles**' from the sidebar and click '**Create role**'.
  - Choose '**AWS service**' for the trusted entity type and select '**EC2**' under common use cases.
  - Click **Next** twice to proceed with the role configuration.



### 3. Name and Review:

- Give your role a meaningful name, such as ***EC2-NiceDCV-Licensing***.
- Optionally, add a description to remind you of the role's purpose.

- Review the role details to ensure everything is configured correctly and then click Create role.



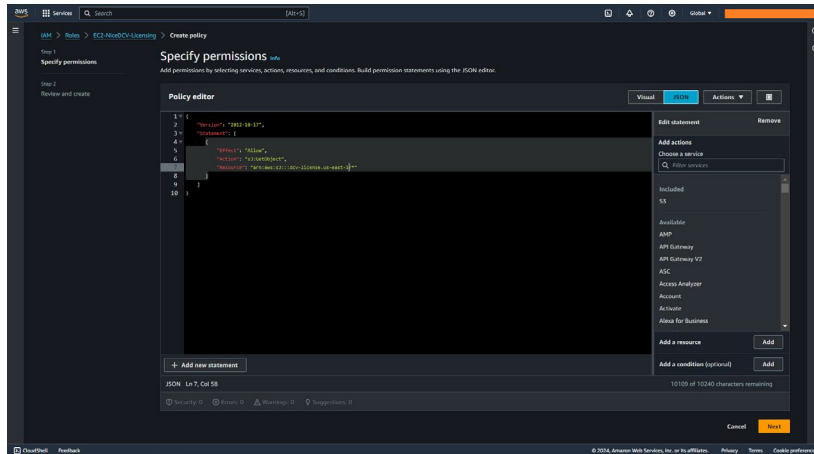
#### 4. Configure Permissions:

- **Access the Created Role:** Navigate back to the IAM console.
- Under the Roles section, find and click on the role you previously created (e.g., *EC2-NiceDCV-Licensing*).
- **Add Permission to the Role:** Click on the Add permissions button.
- Choose **Create inline policy** to directly attach custom permissions.
- **Define the Policy:** Click on the JSON tab to manually edit the policy.
- Copy and paste the following policy into the JSON editor:

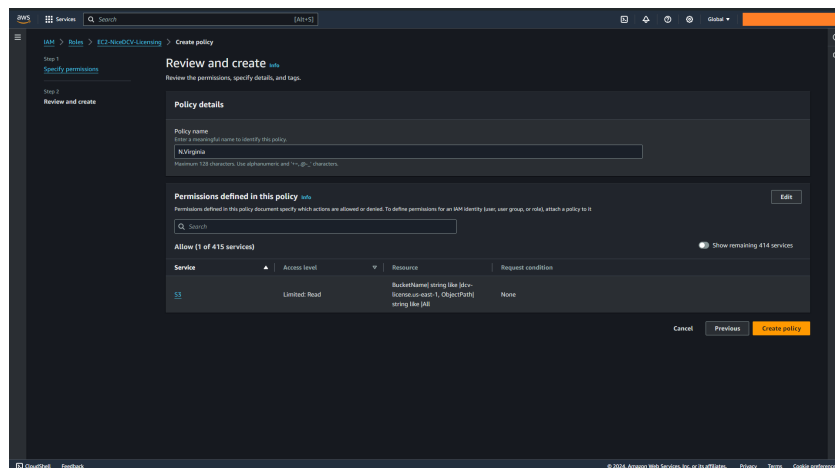
```
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Effect": "Allow",
      "Action": "s3:GetObject",
      "Resource": "arn:aws:s3:::dcv-license.region/*"
    }
  ]
}
```



- **Replace <region>** in the Resource path with your AWS Region, such as **us-east-1**. This ensures that the policy is correctly configured for your specific geographic area.



- **Review and Create Policy:** After inputting the policy, click Next to proceed.
- Review the policy settings to ensure everything is correct.
- Provide a descriptive name for the policy, such as **NiceDCV-License-Policy-N.Virginia**, to easily identify it later.
- Click **Create policy** to finalize the setup.

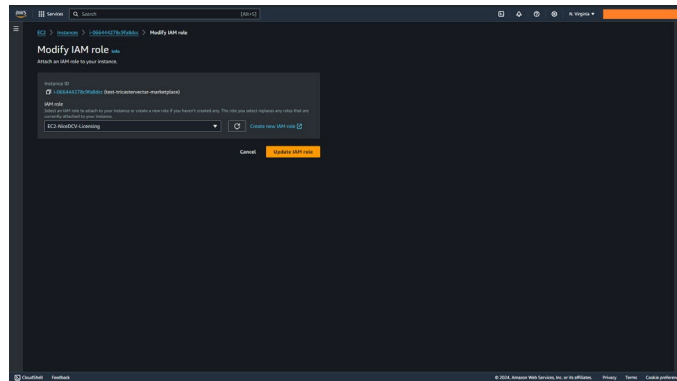


## 5. Associate the IAM Role with the EC2 Instance:

- Return to the EC2 console where your instance is listed.



- Select the instance, click on **Actions**, navigate to **Security**, and select **Modify IAM role**.
- Choose the IAM role you just created from the dropdown list and apply it to the instance.



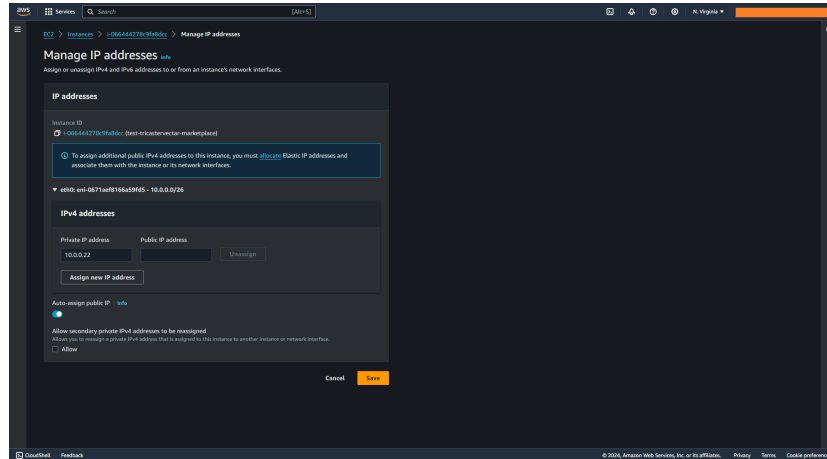
#### 4.2 Setting Auto-assigned IP Address in the EC2 Console

To ensure your EC2 instance can communicate effectively with the internet, you need to enable auto-assignment of public IP addresses, especially if your instance operates within a public subnet. Follow these steps to configure this setting:

1. **Access EC2 Management Console:** Open the AWS Management Console and navigate to the EC2 dashboard
2. **Locate the Instance:** Identify the EC2 instance for which you want to enable auto-assigned IP addressing and click its checkbox
3. **Adjust Network Settings:** Select the instance, then from the Actions dropdown menu, choose Networking > Manage IP addresses.
4. **Enable Auto-Assign Public IP:** Within the network interfaces section, select the primary network interface (typically labeled as eth0). Find and enable the Auto-assign Public IP option.



5. Click **Save** your changes to apply the new network settings.



**Understanding Auto-Assigned IP Addresses:** Auto-assigned IP addresses are straightforward and cost-effective since they incur no additional charges. However, these IP addresses change every time the instance is stopped and restarted. If your operations require a stable IP address, consider using an Elastic IP. Elastic IPs maintain the same IP address across starts and stops, providing consistency for your workflows. For details on how to allocate and associate an Elastic IP with your EC2 instance, consult the AWS documentation.

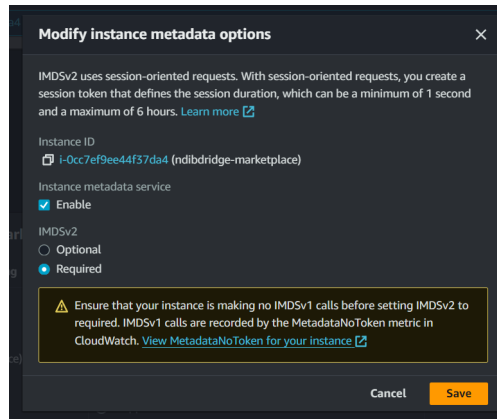
### 4.3 Enabling IMDSv2 Metadata

For enhanced security, it's important to enable the Instance Metadata Service Version 2 (IMDSv2) on your EC2 instances. Follow these steps to configure IMDSv2:

- **Access the EC2 Management Console:** Open the AWS Management Console. Navigate to the EC2 service dashboard.
- **Locate and Select Your Instance:** Find the EC2 instance you wish to modify. Select it by clicking the checkbox next to the instance name.
- **Modify Instance Settings:** With the instance selected, open the 'Actions' dropdown menu. Navigate to 'Instance Settings' and select 'Modify Instance Metadata Options'.



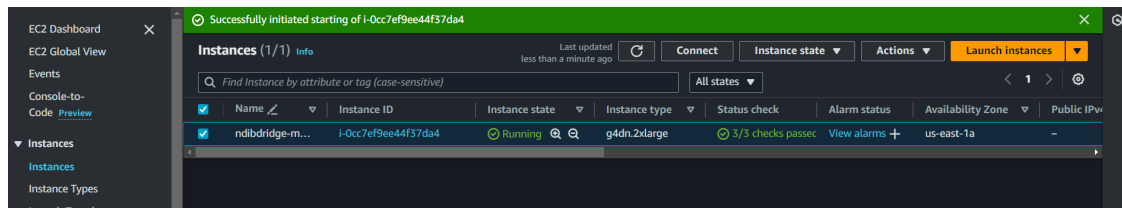
- **Configure IMDSv2:** change the state to 'Required'. Confirm your changes by clicking 'Save'.



#### 4.4 Starting and Connecting to Your EC2 Instance

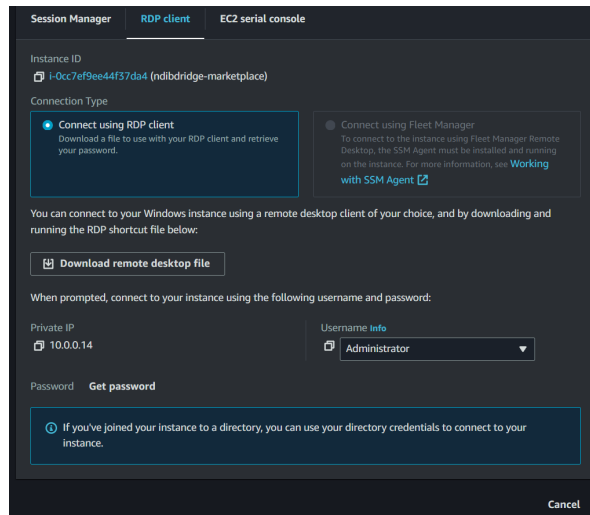
Follow these steps to start your EC2 instance and connect to it using an RDP client, such as Nice DCV, which allows for secure and high-performance remote access.

1. **Start the EC2 Instance:** Open the AWS EC2 Console and navigate to the 'Instances' section. Select your instance by clicking the checkbox next to it. Under the 'Instance State' drop-down, choose 'Start Instance'.

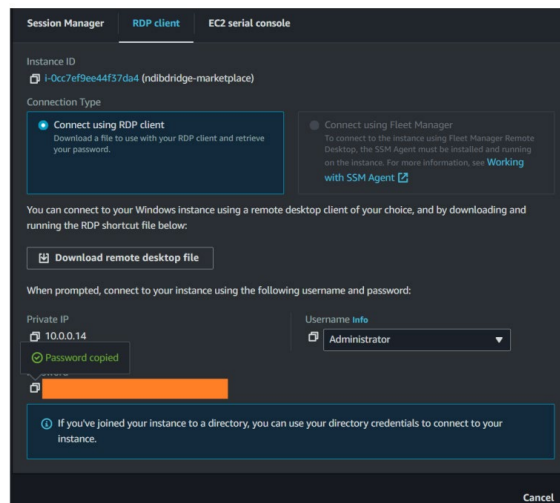




2. **Access the RDP Client Connection Details:** Once the instance is running, select 'Connect' at the top of the EC2 console. Choose the 'RDP client' tab on the 'Connect to instance' page.



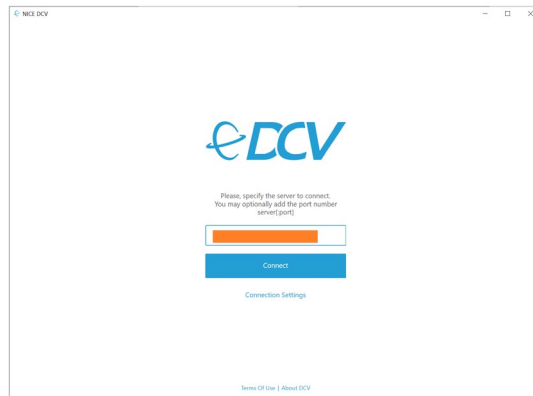
3. **Decrypt and Obtain the Administrator Password:** Click 'Get Password' and upload the private key file you saved during key pair creation. Click 'Decrypt Password' to display the administrator password, then copy it for later use.



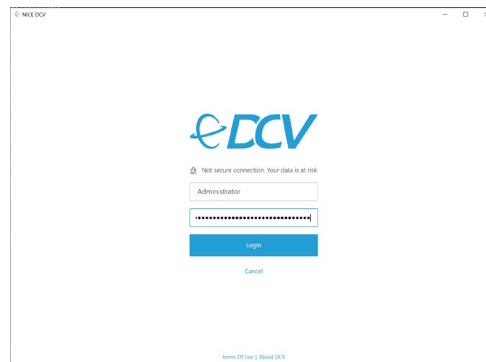
4. **Copy the Public DNS:** Copy the Public DNS or IP address displayed on the EC2 dashboard.
5. **Connect Using Nice DCV Client:**
  - Launch the Nice DCV client on your local machine.



- Enter the copied Public DNS or IP address and the decrypted administrator password.
- Click 'Connect' to start the remote desktop session



- Click Trust and Connect
- Enter Administrator as username and the decrypted password. Click **Login** to initiate the remote desktop session.

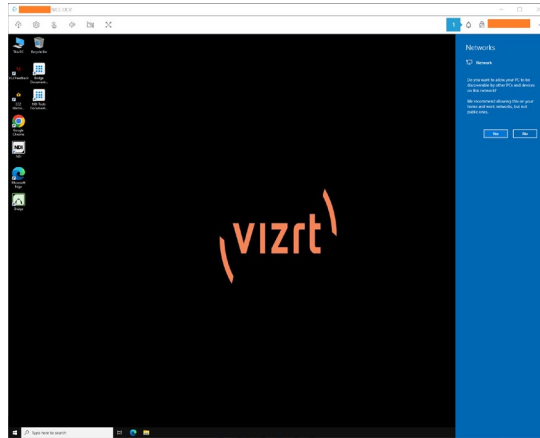


## 6. Launch NDI Bridge:

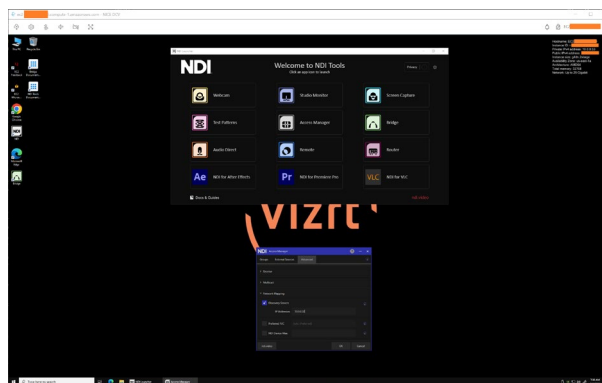
- **Address the Shutdown Event Tracker** modal if prompted by selecting an appropriate reason or providing feedback, then confirm with 'OK'.



- **Respond to the network discoverability prompt** by choosing 'Yes' to ensure proper network communication within your VPC.



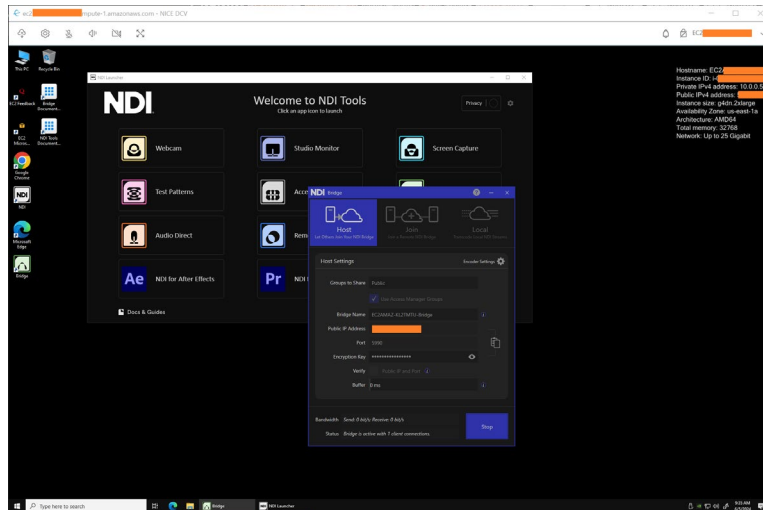
- **Configure NDI Access Manager:** Open NDI Tools by clicking the NDI icon on your desktop.
- Select "**Access Manager**" and switch to the 'Advanced' tab.
- Type the **Private IP** address of your NDI Discovery Server into the 'Discovery Servers' field and press OK.



- Double-click the **Bridge** icon on your desktop to start the NDI Bridge application.

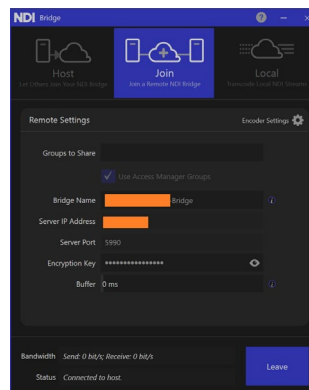


- **Activate Host Bridge:** Start the NDI Bridge in Host mode to begin accepting connections.



## 7. Pair Two NDI Bridges:

- **Configure the Local NDI Bridge:** Open NDI Bridge on your local machine and set it to Join mode.
- Enter the **Public IP address** of the remote Bridge Host hosted on the EC2 instance in the Server IP Address field.
- Enter the **Encryption Key** and then start the NDI Bridge



## 8. Test NDI Flow:

- Test an NDI flow from your local machine to the cloud using the NDI Test Patterns to ensure everything is configured correctly.

For more detailed information and troubleshooting, refer to the [NDI Bridge documentation](#).



## 5 Additional Resources

For those new to AWS or needing a refresher, consider the following resources to get up to speed:

- [AWS Training and Certification](#): Offers courses to enhance your understanding of AWS services.
- [AWS Documentation](#): Provides comprehensive guides and tutorials on using AWS services.

For those looking to deepen their knowledge and skills in operating TriCaster® Vectar and other related technologies, the following resources are invaluable:

- **NDI Documentation and Setup Help**: For more detailed information and advanced configurations, visit the official NDI documentation at [NDI Tools Documentation \(https://docs.ndi.video/tools\)](https://docs.ndi.video/tools).

### Expand Your Skills with Viz University Courses

To help you maximize your TriCaster Vectar experience, Viz University offers a selection of free courses that delve into various aspects of operating TriCaster systems. These courses are designed to enhance your knowledge and skills, whether you're new to vision mixing or looking to master more advanced features.

1. **Introduction to Vision Mixing with TriCaster**: Gain foundational knowledge on vision mixing and learn the basics of video switching, media playback, audio mixing, and output configuration using TriCaster. This course starts with the computer interface and extends to control panel operations. [Enroll Here](#)
2. **Advanced Vision Mixing with TriCaster**: Explore the advanced capabilities of TriCaster, including M/E operation, chroma keying, macros, automation, and more. The course covers both the user interface and control panel operations. [Enroll Here](#)
3. **TriCaster Production Graphics**: Understand the crucial role of graphics in live production. This course covers creating titles, transitions, animated logos, and virtual sets, providing practical examples and focusing on various graphics workflows within TriCaster. [Enroll Here](#)
4. **Live Story Creator In-Depth**: Discover how to produce scripted shows efficiently using TriCaster's Live Story Creator. Learn to set up a teleprompter, control it from various devices, and automate production elements directly from a Microsoft Word script. [Enroll Here](#)



5. **NDI and Performance Media Networking Class:** Master the essentials of video over IP networking, tailored for the high-performance requirements of live production. This course covers everything from network hardware to detailed insights into NDI protocol operations, organization, and troubleshooting. [Enroll Here](#)

These courses are designed to be accessible for users at different skill levels and provide a structured learning path to enhance your live production capabilities with TriCaster Vector.