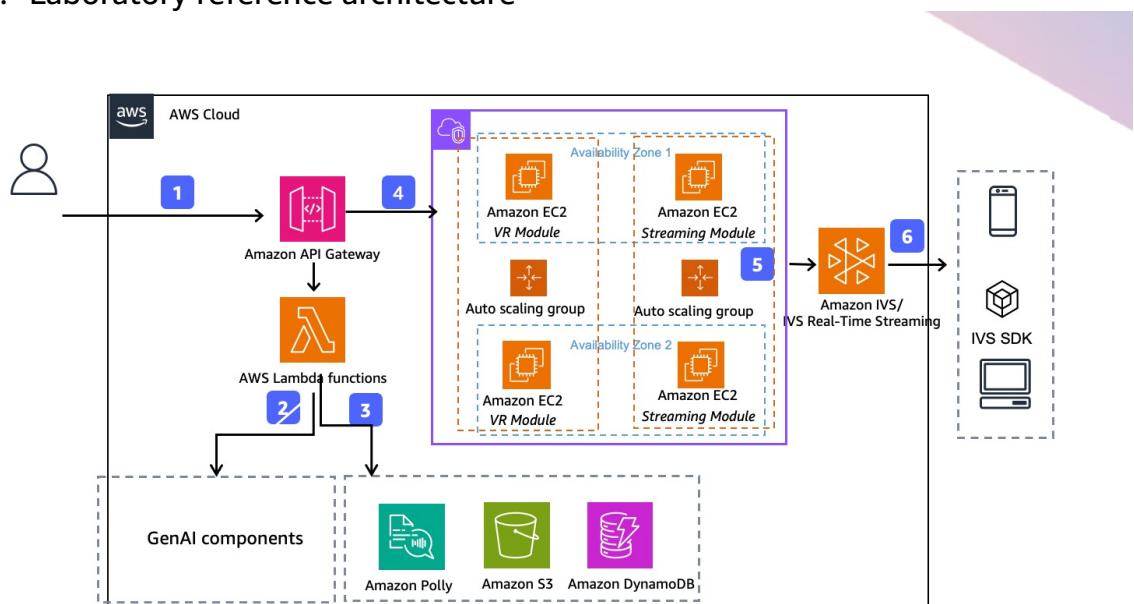


Digital Human Livestream

Solution Overview

- a. Deploy the digital human VR module in the cloud and use the test web page to control digital human actions. Render through the cloud and convert it into a live video stream and push it to the Interactive Video Service to complete the digital human live demo
- b. Laboratory reference architecture



- c. Department mode: The system supports three modes
 1. Command mode: directly through the interface to let the digital person speak or perform immediately after receiving the command
Suitable for connecting with intelligent recommendations
 2. Screenplay mode: Through a pre-arranged script, you can choose to activate a certain script command to control digital people speaking or performing
Suitable for e-commerce shopping guide, knowledge introduction, digital performance

3. Intelligent response mode: users ask questions through text (voice), and digital people with different roles answer different questions (based on language model)
Suitable for intelligent customer service, exhibition halls, and social scenarios in the future

This experiment uses mode 1 and mode 3

- d. This **deployment is a piecemeal deployment. The completion criteria are:** 1.
Control digital human characters, speech, tone of voice, and display images through test pages
2. You can watch digital people's performances via remote access or streaming in the cloud
3. Able to support intelligent responses from digital people (this experiment uses bedrock, FM is Claude 2)

Preliminary preparations

- a. Determine if the vCPU quota for the G type instance in the Global Tokyo area is greater than or equal to 16. This demonstration case is based on the US East 1 or Tokyo district. A Amazon S 3 is recommended. The Amazon Cloud Formation deployment is consistent in the US East 1 region, and EC 2 is deployed in the Tokyo area, and this regional mirror has been obtained.
Note: Amazon IVS and Amazon Polly's Neural Voice are not currently available in China
- b. US East 1 activates Bedrock's Claude-related models, click the link below to view and apply. <https://us-east-1.console.aws.amazon.com/bedrock/home?region=us-east-1#/>
- c. Download RDP client on laptop, Mac Book recommends Parallels Client
- d. Safari (Mac) or Edge browser is installed on the laptop
- e. It is recommended to turn off the VPN to prevent IP changes
- f. If you have installed this digital live streaming program in the same area, please perform the operation to restore the initial state. For

operations to restore the initial state, please see the “Restoring the initial state” section

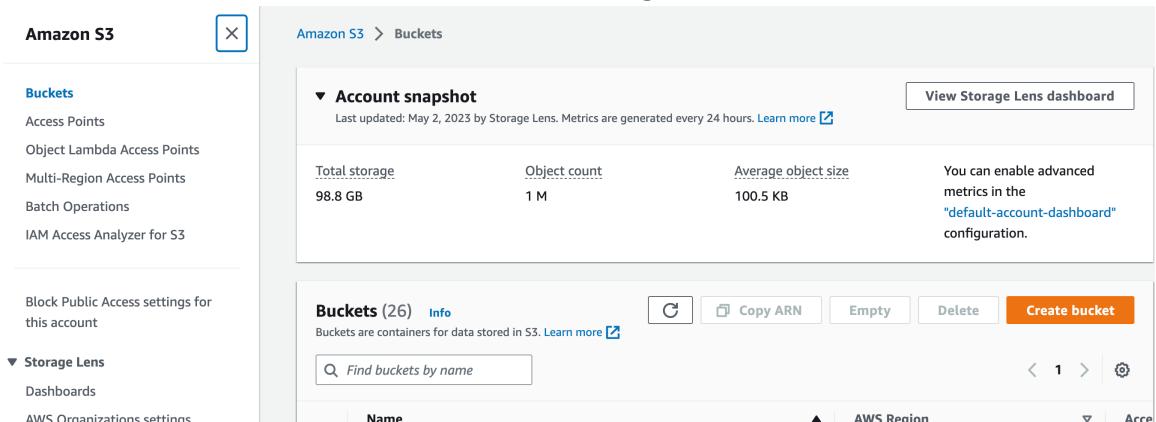
- g. Tokyo district PRVE preparation, share images of Tokyo city in advance before the workshop

Lab steps

1. Deploy the driver section

1.1 Create Amazon S3 and Amazon CloudFront and configure Amazon CloudFront to access Amazon S3

- a. Click to **create a bucket in US - East -1 Virginia**



- b. Name the bucket, do not repeat it, and remember that this name is {bucket name}, click

Create bucket

The screenshot shows the 'Create bucket' wizard. In the 'General configuration' section, the bucket name is set to 'digitalhumanbucket'. The 'AWS Region' is set to 'Asia Pacific (Singapore) ap-southeast-1'. Under 'Object Ownership', it says 'Control ownership of objects written to this bucket from other AWS accounts and the use of access control lists (ACLs). Object ownership determines who can specify access to objects.' A 'Choose bucket' button is present.

- c. Once created, set S3 cross-domain permissions and select the permission tab

The screenshot shows the 'digitalhumanbucket' permissions page. The 'Permissions' tab is selected. Under 'Permissions overview', it shows 'Access' and 'Bucket and objects not public'. In the 'Block public access (bucket settings)' section, it says: 'Public access is granted to buckets and objects through access control lists (ACLs), bucket policies, access point policies, or all. In order to ensure that public access to all your S3 buckets and objects is blocked, turn on Block all public access. These settings apply only to this bucket and its access points. AWS recommends that you turn on Block all public access, but before applying any of these settings, ensure that your applications will work correctly without public access. If you require some level of public access to your buckets or objects within, you can customize the individual settings below to suit your specific storage use cases.' A 'Learn more' link is provided.

- d. Edit CORS permissions

```
[  
{  
  "allowedHeaders": [  
    "*"  
  ],  
  "allowedMethods": [  
    "PUT",  
    "POST",  
    "DELETE"  
  ],  
  "allowedOrigins": [  
    "*"  
  ],  
  "exposeHeaders": []  
},  
{  
  "allowedHeaders": [  
    "*"  
  ],  
  "allowedMethods": [  
    "PUT",  
    "POST",  
    "DELETE"  
  ],  
  "allowedOrigins": [  
    "*"  
  ],  
  "exposeHeaders": []  
},  
{  
  "allowedHeaders": [],  
  "allowedMethods": [  
    "GET"  
  ],  
  "allowedOrigins": [  
    "*"  
  ],  
  "exposeHeaders": []  
}  
]
```

- e. Create a new distribution in Amazon CloudFront

The screenshot shows the AWS CloudFront Distributions page. At the top, it says "CloudFront > Distributions". Below that, there's a header with "Distributions (8)" and "Info" buttons, followed by "Enable", "Disable", "Delete", and "Create distribution" buttons. A search bar with "Search all distributions" and a page navigation area with "1" are also present.

Return the source to the newly created Amazon S3 above and make the corresponding settings, as shown in the figure

The screenshot shows the "Create new distribution" wizard, Step 2: Set origin settings. It includes fields for "Origin domain" (digitalhumanbucket.s3.us-west-2.amazonaws.com), "Name" (digitalhumanbucket.s3.us-west-2.amazonaws.com), "Origin access" (selected "Legacy access identities"), "Origin access identity" (digitalhumanbucket.s3.us-west-2.amazonaws.com), and "Bucket policy" (selected "Yes, update the bucket policy").

Click Create distribution

And remember the {distribution address} distribution domain name in Amazon CloudFront

CloudFront > Distributions > E2FNXU1VV9XSUH

E2FNXU1VV9XSUH

[View metrics](#)

- [General](#)
- [Origins](#)
- [Behaviors](#)
- [Error pages](#)
- [Geographic restrictions](#)
- [Invalidations](#)
- [Tags](#)

Details

Distribution domain name	ARN	Last modified
(Redacted)	arn:aws:cloudfront::097770673889:distribution/E2FNXU1VV9XSUH	May 4, 2023 at 3:46:02 AM UTC

1.2 CloudFormation Stack Installation, Driven by the Basic Architecture

- Unzip the code.zip copy code and the Amazon CloudFormation template cfn file to the S3 created in the above steps

your objects, you'll need to explicitly grant them permissions. [Learn more](#)

- [Copy S3 URI](#)
- [Copy URL](#)
- [Download](#)
- [Open](#)
- [Delete](#)
- [Actions ▾](#)

[Create folder](#) [Upload](#)

Find objects by prefix

<input type="checkbox"/>	Name	Type	Last modified	Size	Storage class
<input type="checkbox"/>	cfn_DigitalhumanstackStack.template0503.json	json	May 4, 2023, 11:49:32 (UTC+08:00)	48.8 KB	Standard
<input type="checkbox"/>	delete_dynamodb_metadata.zip	zip	May 4, 2023, 11:49:33 (UTC+08:00)	1.0 KB	Standard
<input type="checkbox"/>	get_img_upload_presign_url.zip	zip	May 4, 2023, 11:49:33 (UTC+08:00)	1.2 KB	Standard
<input type="checkbox"/>	get_material_metadata_bykey.zip	zip	May 4, 2023, 11:49:34 (UTC+08:00)	1.0 KB	Standard
<input type="checkbox"/>	get_material_metadata_to_be_played_bykey.zip	zip	May 4, 2023, 11:49:34 (UTC+08:00)	1.2 KB	Standard
<input type="checkbox"/>	set_material_metadata.zip	zip	May 4, 2023, 11:49:35 (UTC+08:00)	2.3 KB	Standard
<input type="checkbox"/>	VRplaybykey.zip	zip	May 4, 2023, 11:49:35 (UTC+08:00)	1.1 KB	Standard

- Execute Amazon CloudFormation and get an address

Management & Governance

AWS CloudFormation

Model and provision all your cloud infrastructure

AWS CloudFormation provides a common language to describe and provision all the infrastructure

[Create a CloudFormation stack](#)

Use your own template or a sample template to quickly get started.

[Create stack](#)

Enter the template's Amazon S3 address

CloudFormation > Stacks > Create stack

Create stack

Step 1
Create stack

Step 2
Specify stack details

Step 3
Configure stack options

Step 4
Review

Prerequisite - Prepare template

Prepare template
Every stack is based on a template. A template is a JSON or YAML file that contains configuration information about the AWS resources you want to include in the stack.

Template is ready Use a sample template Create template in Designer

Specify template
A template is a JSON or YAML file that describes your stack's resources and properties.

Template source
Selecting a template generates an Amazon S3 URL where it will be stored.

Amazon S3 URL Upload a template file

Amazon S3 URL
`https://xxxxxxxxxx.s3.ap-southeast-1.amazonaws.com/cfn_DigitalhumanstackStack.template0503.json`

Amazon S3 template URL

S3 URL: `https://xxxxxxxxxx.s3.ap-southeast-1.amazonaws.com/cfn_DigitalhumanstackStack.template0503.json` [View in Designer](#)

Enter the Amazon S3 name {buck et name} and Amazon CloudFront {delivery address}, (Note that all distribution addresses must start with https, and end with/(you must add/, but don't add {}), same below)

Step 1
Create stack

Step 2
Specify stack details

Step 3
Configure stack options

Step 4
Review

Specify stack details

Stack name

Stack name

Stack name can include letters (A-Z and a-z), numbers (0-9), and dashes (-).

Parameters
Parameters are defined in your template and allow you to input custom values when you create or update a stack.

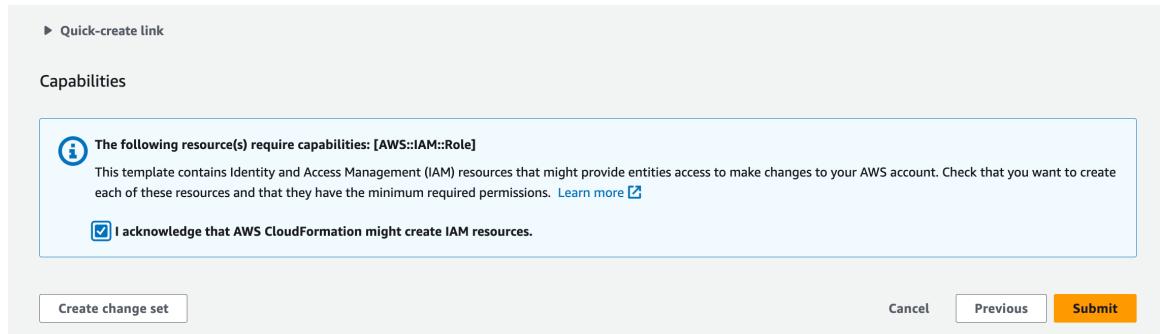
BootstrapVersion
Version of the CDK Bootstrap resources in this environment, automatically retrieved from SSM Parameter Store. [cdk:skip]
`/cdk-bootstrap/hmb659fds/version`

CLOUDFRONTPREFIX
the cloudfront origin to S3 bucket.
`https://████████████████████.net/`

S3BUCKET
S3 bucket.
`████████████████████`

[Cancel](#) [Previous](#) **Next**

Give it a name, use the default values for the others, and click submit



Automatically execute the template to establish a digital human-driven no-service architecture deployment. After successful deployment, there will be an API Gateway root address in the output. Please remember that this address is {API root address}

2. Live section

2.1 Create a new IVS Channel

a. Open Amazon Interactive Video Service and create a new channel.

Recommended in Tokyo

Open the link, start the service HYPERLINK "https://ap-northeast-1.console.aws.amazon.com/ivs/home?region=ap-northeast-1" at <https://ap-northeast-1.console.aws.amazon.com/ivs/home?region=ap-northeast-1> for the first time, select Amazon IVS Channel Hit Get Start

Media Services

Amazon Interactive Video Service

Build Engaging Live Stream Experiences

Amazon Interactive Video Service is a managed live streaming solution that is quick and easy to set up, and ideal for creating interactive video experiences.

Get started

Amazon IVS Channel
Managed live video streaming

Amazon IVS Chat Room
Managed chat solution for live streams

Get started

How it works

Live streaming | Stream chat

Streaming Software → Amazon Interactive Video Service (Managed Live Streaming Solution) → Playback

Pricing [Learn more](#)

Amazon IVS offers pay-as-you go pricing

Live video

Live Input Pricing

Live Output Pricing

Stream chat

Chat Message Pricing

- b. Enter the channel name, you can use any name, and record this name, click create channel

Create channel Info

A channel is a unique configuration for streams. It includes broadcast configuration details (a server URL and stream key) for streaming software/hardware, and a playback URL for playing the stream. Channel configuration may affect pricing. [Amazon IVS Pricing](#)

► How Amazon Interactive Video Service works

Setup

Channel name

digitalhuman1101

Maximum length: 128 characters. May include numbers, letters, underscores (_) and hyphens (-).

Channel configuration

Default configuration

Use the default video latency and configuration, optimized for live interactions.

Custom configuration

Specify your own channel type and video latency configuration.

Channel type Info

Standard (broadcast and deliver live video up to Full HD, with transcoding)

Video latency Info

Ultra-low (best for near real-time interactions with viewers)

Playback authorization Info

Disabled

Record and store streams Info

Record and store streams

When enabled, the channel's live streams are recorded automatically. Archived streams can be managed directly on Amazon S3.

Disabled

Live streams will not be archived.

Auto-record to S3

Create or select a recording configuration.

► Tags Info

A tag is a label that you assign to an AWS resource. Each tag consists of a key and an optional value. You can use tags to search and filter your resources or track your AWS costs.

Cancel

Create channel

- c. Record the ingest server, stream key, playback URL as shown in the image

The screenshot shows the AWS Elemental MediaLive console with a channel named "digitalhuman1101". The "Stream configuration" section is highlighted with a red oval, showing the Stream key and Ingest server. The "Playback configuration" section is also highlighted with a red oval, showing the Playback URL. Arrows point from the Stream key and Ingest server fields to the Playback URL field.

Splice the stream key and ingest server into a streaming address. The Playback URL is treated as a streaming address, and record these two addresses in a notepad or notes

i.e

{streaming address}: <rtmps://87a24f08aea.global-contribute.live-video.net:443/app/>

{Laliu address}: <https://87a24f08a4ea.us-west-2.playback.live-video.net/api/video/v1/us-west-2.097770673889.channel.Dfna9enbLnc3.m3u8>

3. Render part

3.1. Create a new security group (Tokyo-ku)

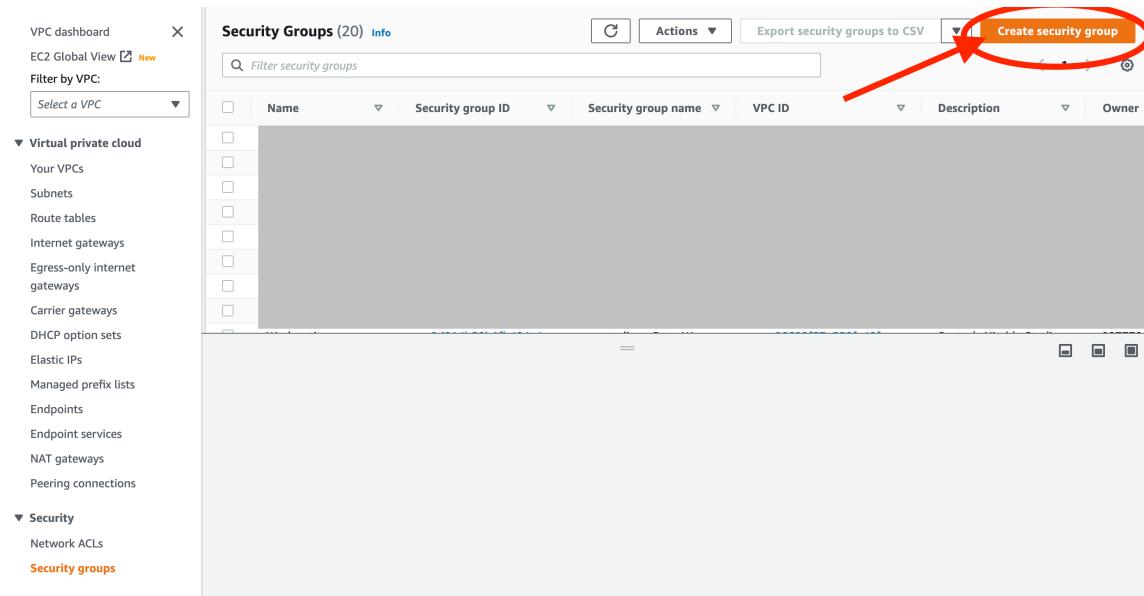
- a. Create a new EC2 security group (digitalhuman-sg) and open the port (3389/3000)

- a. Query the public network IP of the operator terminal

Open the link www.ip.cn, query your own public network address
{operator's public network address}



- b. Open the link: <https://ap-northeast-1.console.aws.amazon.com/ec2/v2/home?region=ap-northeast-1#SecurityGroups> Click: "Create security group"



- c. Option 1. You can access the RDP port and the specified TCP port on the public network. The name of the access security group is security group d digitalhuman-sg. The description is arbitrary. (vPC and EC2 are the same, generally just select the default value), add RDP to the inbound rule, and custom TCP/Port Range 3000, Source CIDR is 0.0.0.0/0, then click create security group

Inbound rules [Info](#)

Type Info	Protocol Info	Port range Info	Source Info	Description - optional Info	
RDP	TCP	3389	Anywhere-IPv4	<input type="text" value="0.0.0."/> 0.0.0 X .0/0	Delete
Custom TCP	TCP	3000	Anywhere-IPv4	<input type="text" value="0.0.0."/> 0.0.0 X .0/0	Delete
Add rule					

- d. Option 2. The specified address can access the RDP port and the specified TCP port. The name of the access security group is security group d digitalhuman-sg. The description is arbitrary. (vPC and EC2 are the same, generally just select the default value), add RDP to the inbound rule, and custom TCP/Port Range 3000, Source CIDR is {operator public network address}/32, then click create security Group

Inbound rules [Info](#)

Type Info	Protocol Info	Port range Info	Source Info	Description - optional Info	
RDP	TCP	3389	Custom	<input type="text" value="10.20.18."/> 10.20.18.2 X 4/32	Delete
Custom TCP	TCP	3000	Custom	<input type="text" value="10.20.18."/> 10.20.18.2 X 4/32	Delete
Add rule					

3.2 Create a new VR module service terminal:

The model is g4dn.2xlarge, the security group is digitalhuman-sg, specify a specially made image and user data, and the rest of the options are silent recognition

- a. [Select the image and open the link https://ap-northeast-1.console.aws.amazon.com/ec2/home?region=ap-northeast-1#Images:visibility=private](#)

Amazon Machine Images (AMIs) (1/1) Info

Name	AMI name	AMI ID	Source	Owner	Visibility
<input checked="" type="checkbox"/> digitalhumanworkshop	digitalhumanworkshop	ami-09427d7af811351a2	097770673889/digitalhumanworkshop	097770673889	Private

AMI ID: ami-09427d7af811351a2

Details

AMI ID	ami-09427d7af811351a2	Image type	machine	Platform details	Windows	Root device type	EBS
AMI name	digitalhumanworkshop	Owner account ID	097770673889	Architecture	x86_64	Usage operation	RunInstances:0002
Root device name	/dev/sda1	Status	Available	Source	097770673889/digitalhumanworkshop	Virtualization type	hvm

Find this image of digitalhumanworkshop

Amazon Machine Images (AMIs) (1/1) Info

Name	AMI name	AMI ID	Source	Owner	Visibility
<input checked="" type="checkbox"/> digitalhumanworkshop	digitalhumanworkshop	ami-09427d7af811351a2	097770673889/digitalhumanworkshop	097770673889	Private

AMI ID: ami-09427d7af811351a2

Details

AMI ID	ami-09427d7af811351a2	Image type	machine	Platform details	Windows	Root device type	EBS
AMI name	digitalhumanworkshop	Owner account ID	097770673889	Architecture	x86_64	Usage operation	RunInstances:0002
Root device name	/dev/sda1	Status	Available	Source	097770673889/digitalhumanworkshop	Virtualization type	hvm

Click Launch Instance from AMI

- Set the initial parameters of the image and start the instance
Select the instance type: g4dn.2xlarge

▼ Instance type [Info](#)

Instance type

g4dn.xlarge

Family: g4dn 4 vCPU 16 GiB Memory

[Compare instance types](#)

The AMI vendor recommends using a g4dn.xlarge instance (or larger) for the best experience with this product.

Generate a key, such as workshop.pem, and save it locally in a reliable location (the key name is arbitrary, easy to remember and save)

▼ Key pair (login) [Info](#)

You can use a key pair to securely connect to your instance. Ensure that you have access to the selected key pair before you launch the instance.

Key pair name - required

Select

[Create new key pair](#)

For Windows instances, you use a key pair to decrypt the administrator password. You then use the decrypted password to connect to your instance.

Select security group as the pre-set digitalhuman_sg

▼ Network settings [Info](#)

[Edit](#)

Network [Info](#)

vpc-06b790189967bc134

Subnet [Info](#)

No preference (Default subnet in any availability zone)

Auto-assign public IP [Info](#)

Enable

Firewall (security groups) [Info](#)

A security group is a set of firewall rules that control the traffic for your instance. Add rules to allow specific traffic to reach your instance.

Create security group

Select existing security group

Security groups [Info](#)

Select security groups

digitalhuman_sg sg-0105ad446a933edb4 X
VPC: vpc-06b790189967bc134

[Compare security group rules](#)

Change the SSD hard drive to 300 G

Configure storage [Info](#) [Advanced](#)

1x **300** GiB **gp2** Root volume (Not encrypted)

ⓘ Free tier eligible customers can get up to 30 GB of EBS General Purpose (SSD) or Magnetic storage [X](#)

[Add new volume](#)

Instance store volumes [Show details](#)

Instance Type Volumes are not included in the template unless modified

The selected AMI contains more instance store volumes than the instance allows. Only the first 1 instance store volumes from the AMI will be accessible from the instance

0 x File systems [Edit](#)

Set the initial parameters (skip this step) Enter User data as follows, note that you need to change the two places marked as

<powershell>

```
$login="0001"
$liveaddress=" {streaming address}"
$root=" {API root address}"
$root_vr=$root+” /get_material_metadata_to_be_played_bykey”
$img_end_point=" {CloudFront distribution address}”
New-Item -Force -Path “C:\digitalhuman\innovation_Data” -Name
“config.json” -Value “[{"vr_module": `"$login`", "livestream_address`":
`"$liveaddress`", "root_path": `"$root_vr`"}]”
New-Item -Force -Path “C:\ft\digitalhuman\data” -Name “config.json” -
Value “[{"img_end_point": `"$img_end_point`",
"root_path": `"$root`"}]”
Invoke-Item -Path C:\digitalhuman\innovation.exe

cd C:\ft\digitalhuman

npm run build
```

Start npm run

</powershell>

adduced

```
<powershell>
$login="0001"
$liveaddress=" rtmps://0ea113af476a.global-contribute.live-video.net:
443/app/sk_ap-northeast-
1_dzccukh1493v_gq9pdddhuw4mr3p84rq2wovxfz67g0"
$root=" https://51j38n0kh.execute-api.us-east-
1.amazonaws.com/prod/get_material_metadata_to_be_played_bykey"
$root_vr=$root+/get_material_metadata_to_be_played_bykey"

$img_end_point=" https://d21iigz8r40x8r.cloudfront.net/"
New-Item -Force -Path "C:\digitalhuman\innovation_Data" -Name "config.json" -
Value "[{"vr_module": "$login", "livestream_address": "$liveaddress",
"root_path": "$root_vr"}]"
New-Item -Force -Path "C:\ft\digitalhuman\data" -Name "config.json" -Value
"[{"img_end_point": "$img_end_point",
"root_path": "$root"}]"
Invoke-Item -Path C:\digitalhuman\innovation.exe
CD\ ft\ digitalhuman
npm run build
Start npm run
</powershell>
<persist>true</persist>
```

3.3 Start the VR module program and test service

- a. The RDP client connects to the host and verifies that the VR module is running correctly

Query the IP of EC 2: Go to the EC 2 console <https://us-east-1.console.aws.amazon.com/ec2/v2/home?region=us-east-1#Home>
Click instance (running) to find public IPv6 4 in the newly created instance Address, and recorded as {instance public network address}

The screenshot shows the AWS EC2 Dashboard. On the left, a sidebar lists various EC2-related options like EC2 Dashboard, Events, Tags, Limits, Instances, Images, and Elastic Block Store. The main area is divided into several sections:

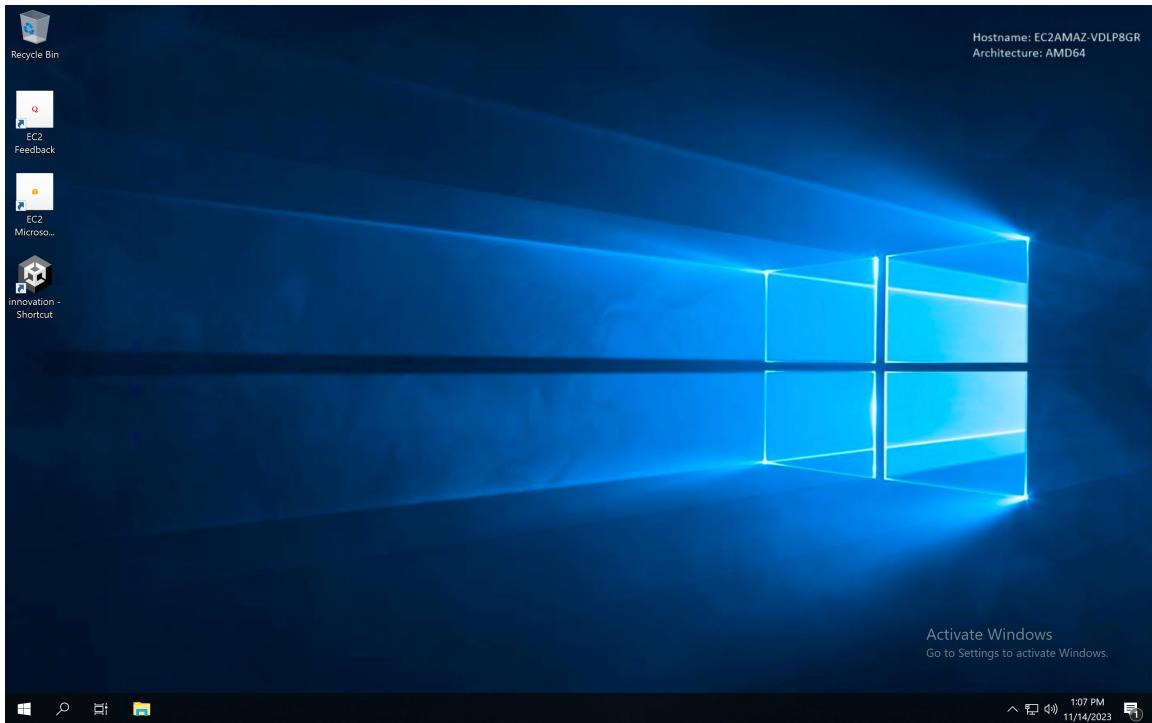
- Resources:** Displays a table of EC2 resources in the US West (Oregon) Region. The 'Instances (running)' row is circled in red.
- Launch Instance:** A form to start a new EC2 instance.
- Service health:** Shows the status of the service, which is operating normally.
- Scheduled events:** A list of scheduled tasks.
- Explore AWS:** Promotional links for better price performance and spot instances.
- Instances (1/4) Info:** A table listing four instances. One instance, 'd39b', is highlighted with a red circle in the Public IPv4 column.

Below the table, detailed information for instance 'd39b' is shown:

Answer private resource DNS name IPv4 (A)	Instance type c5.xlarge	Elastic IP addresses —
--	----------------------------	---------------------------

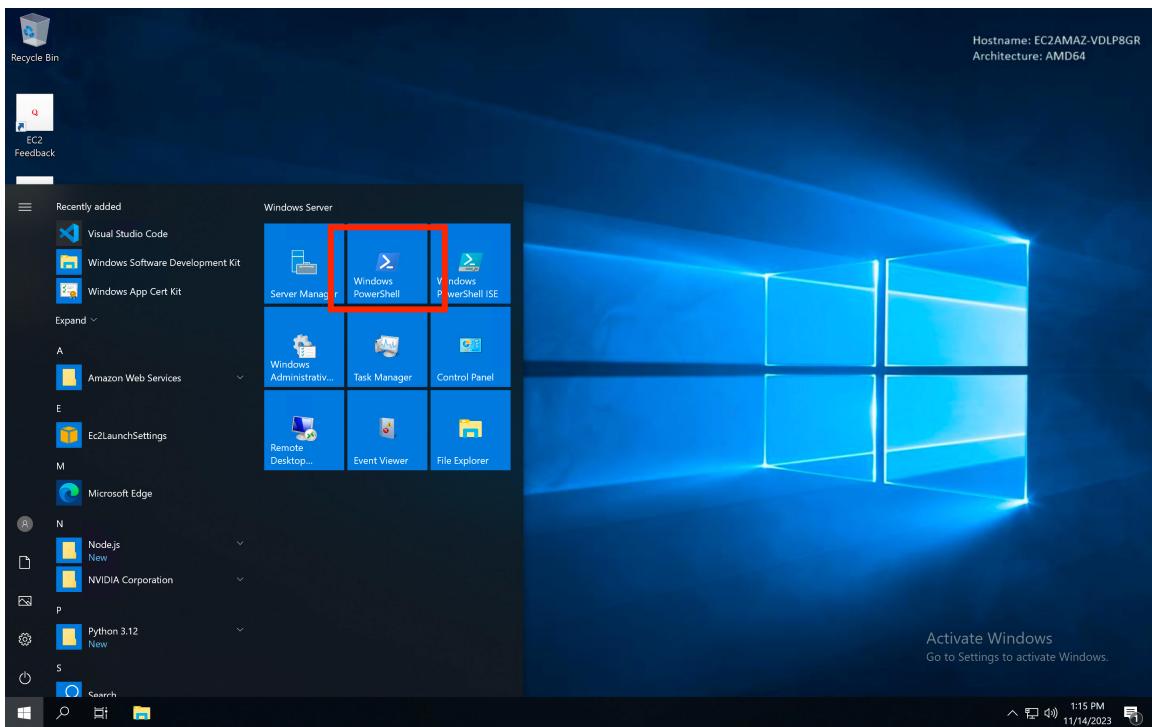
Use an RDP terminal to log in to the cloud host: open /RDP terminal, enter, enter the user password Adminis tra t or/ Digitalhuman 0515, and log in remotely

After logging in, you can see the normal Windows desktop



b. Start the testing service, VR program, and streaming process

Click the Windows icon, select Windows PowerShell and click



Enter the PowerShell form, copy the following script, and press enter.
Replace the {XXX} part with the real value. Note that the powershell script
must not add unnecessary spaces within ""

```
$login="0001"
$liveaddress=" {streaming address}"
$root=" {API root address}"
$root_vr=$root+/get_material_metadata_to_be_played_bykey"
$img_end_point=" {CloudFront distribution address}"
New-Item -Force -Path "C:\digitalhuman\innovation_Data" -Name
"config.json" -Value "[{"vr_module": "$login", "livestream_address":
"$liveaddress", "root_path": "$root_vr"}]"
New-Item -Force -Path "C:\ft\digitalhuman\data" -Name "config.json" -
Value "[{"img_end_point": "$img_end_point",
"root_path": "$root"}]"
Invoke-Item -Path C:\digitalhuman\innovation.exe

cd C:\ft\digitalhuman

npm run build

Start npm run
```

i.e

```
$login="0001"
$liveaddress=" rtmps://0ea113af476a.global-contribute.live-video.net:
443/app/sk_ap-northeast-
1_dzccukh1493v_gq9pdddhuw4mr3p84rq2wovxfz67g0"
$root=" https://yw1mbczk19.execute-api.us-east-1.amazonaws.com/prod/"
$root_vr=$root+/get_material_metadata_to_be_played_bykey"
$img_end_point="https://d2acfki0ir7gf0.cloudfront.net/"
New-Item -Force -Path "C:\digitalhuman\innovation_Data" -Name "config.json" -
Value "[{"vr_module": "$login", "livestream_address": "$liveaddress",
"root_path": "$root_vr"}]"
New-Item -Force -Path "C:\ft\digitalhuman\data" -Name "config.json" -Value
"[{"img_end_point": "$img_end_point",
"root_path": "$root"}]"
Invoke-Item -Path C:\digitalhuman\innovation.exe
CD\ ft\ digitalhuman
npm run build
Start npm run
```

4. System joint debugging

4.1 API test page

- a. Go to the test page and log in to the digital person live streaming API test page (offline after workshop). The address is {instance public network address IP} :3000



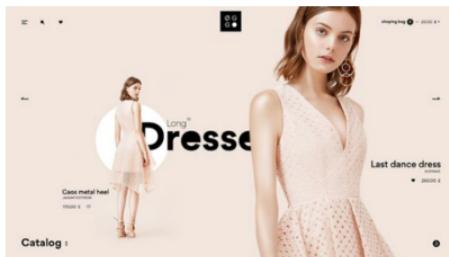
- b. Test real-time control mode, test page manipulation of digital human movements
 - VR module serial number: 0001
 - Text: Please enter what you want the digital person to say. The text content must be consistent with the language. For example, after entering Chinese, the next language to select must be Chinese
 - Character: Select the digital human character, which represents the digital human model
 - Select Language Voice: Select the gender of the digital human voice and the language used

- Scene: Select the background type. Here are two types: commerce and supermarket
- Motions: Actions used by digital people. There are three speech modes to choose from
- Speed of speech: The speed at which a digital person speaks, a total of five levels
- Background image: This version is a picture of a digital person display box
- Click “Add Material” and the digital person will directly accept the instructions.

数字人实时控制接口测试

选择介绍图片， JPG格式， 1920*1080分辨率

Choose File samples1.jpg



文字

你好，我是数字人

选择角色:

Rin Female Asian ▾

选择语言和声音:

女性普通话 ▾

选择场景:

Shopping Mall ▾

动作

严肃讲话 ▾

语速:

正常 ▾

VRmodule序号:

0001 ▾

机位

正面机位 ▾

添加素材

c. Digital Human Intelligent Response (Bedrock-based)

- VR module:0001
- Enter text: Type the question you want to ask
- Digital Human Identity: Matching Different Characters and LLM/RAG Templates
- Seat: Orientation and position of the digital person
- Click to send text

多场景数字人对话

4.2 Digital person test

- a. Remote desktop verification, log in to the remote desktop, and you can simultaneously see the movements and sounds

of digital people (do not turn off the remote desktop in this test, stay online)



Verify and broadcast the digital person live

- b. Open the interactive video service channel to check the livestream status

Go to <https://ap-northeast-1.console.aws.amazon.com/ivs/home?region=ap-northeast-1 #>

Click on the channel created above in channels

The screenshot shows the Amazon IVS console interface. On the left, there's a navigation sidebar with sections for Video (Overview, Channels, Live channels, Playback keys, Recording configurations), Chat (Overview, Rooms, Logging configurations), Documentation, Player SDK, and Broadcast SDK. The 'Channels' link under 'Video' is highlighted with a red circle. The main content area is titled 'Amazon IVS > Video > Channels'. It displays a table titled 'Channels' with one row. The row contains a checkbox, the name 'digitalhuman110', 'Ultra-low' video latency, 'Disabled' authorization, and the ARN 'arn:aws:ivs:us-west-2:097770673889:channel/Dfna9enbLnc3'. There are buttons for 'View details', 'Edit', 'Delete', and 'Create channel' at the top right of the table.

Click livestream monitoring to check the live streaming status
Status is Live, and the health status Health is healthy

digitalhuman [Info](#)

[Stop stream](#) [Edit](#) [Delete](#)

General configuration

Channel name digitalhuman	Channel type Standard	Video latency Low
Playback authorization Disabled	Auto-record to S3 Disabled	ARN arn:aws:ivs:ap-northeast-1:097770673889:channel/NE6P7RaH3Uth

[Playback](#) [Broadcast](#)

Note: Playback will consume resources, and you will incur live video output cost. [Learn more](#)

State LIVE	Health Healthy	Duration 00:42:01	Viewers 1
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[▶ Timed Metadata](#)

Stream configuration [Info](#)

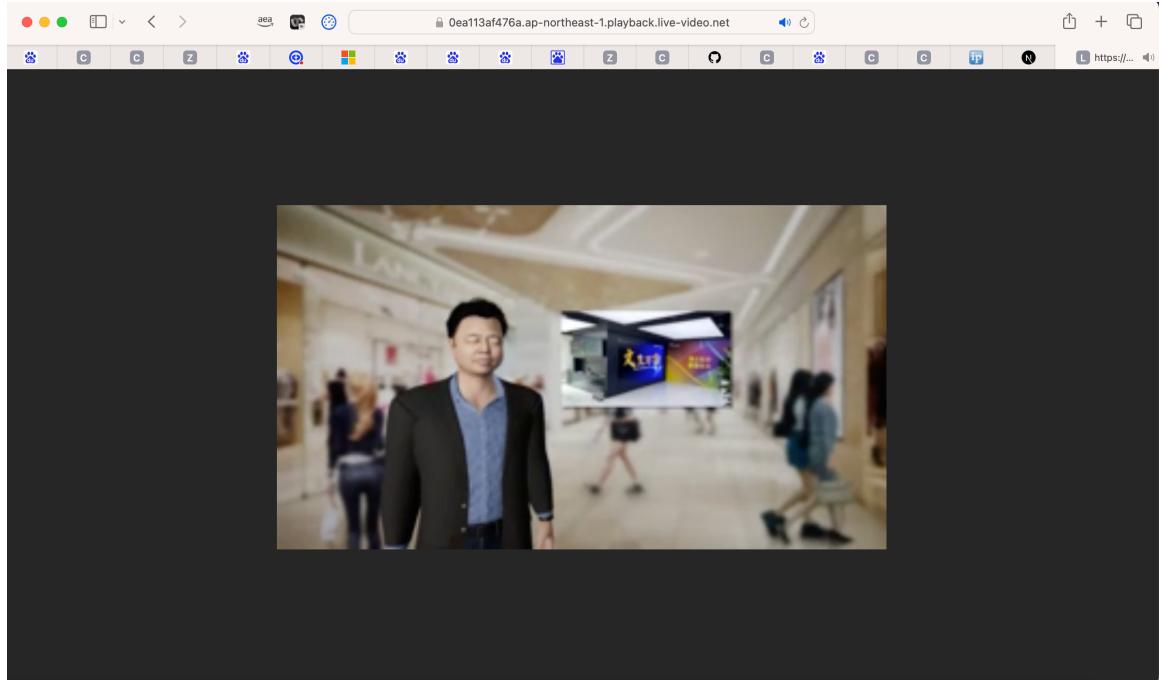
[Reset stream key](#)

Stream key Show
Ingest server rtmps://0ea113af476a.global-contribute.live-video.net:443/app/
▶ Other ingest options

Playback configuration [Info](#)

Playback URL https://0ea113af476a.ap-northeast-1.playback.live-video.net/api/video/v1/ap-northeast-1.097770673889.channel.NE6P7RaH3Uth.m3u8
--

- c. Open the Safari or Edge browser and enter the obtained {stream address} in the address bar to see the digital person live



Note that due to overseas streaming, the playback effect may not be smooth and clear enough due to insufficient bandwidth

5. Handling of abnormal situations

5.1 Front-end page needs to be restarted

Press Ctrl+C in Powershell to stop the react program

Rebuild input

npm run build

Restart input

Start npm run

```
next-server
  Creating an optimized production build
  Compiled successfully
  Collecting page data ...https://d2iiigz8r40x8r.cloudfront.net/
https://51j38n0kvh.execute-api.us-east-1.amazonaws.com/prod/get_material_metadata_to_be_played_bykey
  Collecting page data
  Generating static pages (0/5) [= ]https://d2iiigz8r40x8r.cloudfront.net/
https://51j38n0kvh.execute-api.us-east-1.amazonaws.com/prod/get_material_metadata_to_be_played_bykey
resources []
  Generating static pages (5/5)
  Collecting build traces
  Finalizing page optimization

Route (pages)          Size   First Load JS
o / (342 ms)           21.6 kB    127 kB
|- _app                 0 B       78.1 kB
o /404                182 B      78.3 kB
λ /api/hello           0 B       78.1 kB
o /LiveItem             628 B     106 kB
o /SlideItem            1.47 kB    107 kB
+ First Load JS shared by all
| chunks/framework-66d32731bdd20e83.js 45.2 kB
| chunks/main-50d44469728668f3.js 31.7 kB
| chunks/pages/_app-50237f8097d6e393.js 294 B
| chunks/webpack-38cee4c0e358b1a3.js 862 B
css/a6abadd8a426ba2f.css 30.8 kB

o (Static)  prerendered as static content
λ (Dynamic) server-rendered on demand using Node.js

> digitalhuman@0.1.0 start
> next start

  ▲ Next.js 14.0.2
  - Local:      http://localhost:3000

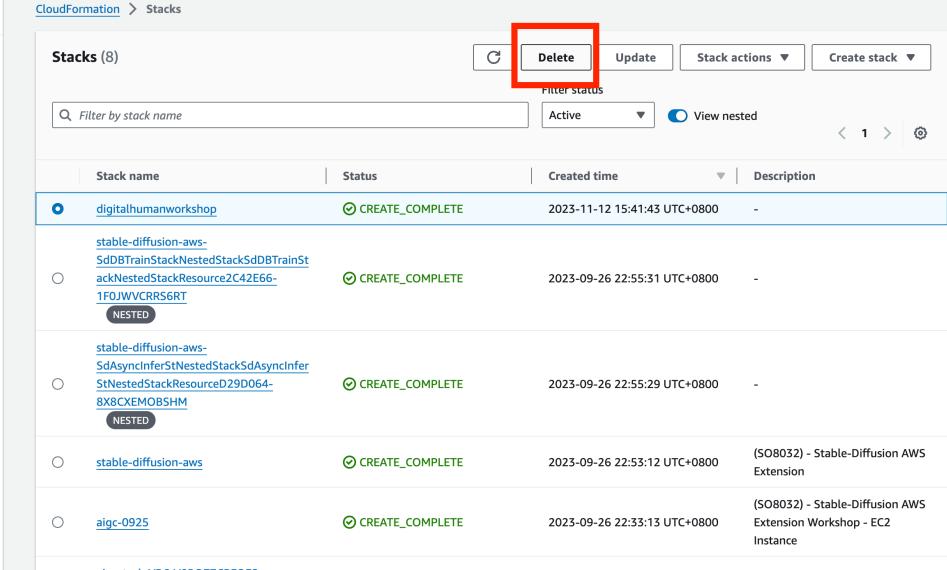
  Ready in 513ms
```

5.1 The VR program needs to be restarted

Since this VR package is quite large, the initial loading time is long. If it takes more than five minutes, you can remote desktop, press the Windows button (command button for Mac), and right click on the VR program in the status bar and click “close” window”

5. Restore the initial state

5. 1 Delete CloudFormation Stack



The screenshot shows the AWS CloudFormation console with the 'Stacks' list. There are 8 stacks listed:

Stack name	Status	Created time	Description
digitalhumanworkshop	CREATE_COMPLETE	2023-11-12 15:41:43 UTC+0800	-
stable-diffusion-aws-SdDBTrainStackNestedStackSdDBTrainStackNestedStackResource2C42E66-1FOJWVCR56RT	CREATE_COMPLETE	2023-09-26 22:55:31 UTC+0800	-
stable-diffusion-aws-SdAsyncInferStNestedStackSdAsyncInferStNestedStackResourceD29D064-8X8CXEMOBSHM	CREATE_COMPLETE	2023-09-26 22:55:29 UTC+0800	-
stable-diffusion-aws	CREATE_COMPLETE	2023-09-26 22:53:12 UTC+0800	(SO8032) - Stable-Diffusion AWS Extension
aigc-0925	CREATE_COMPLETE	2023-09-26 22:53:13 UTC+0800	(SO8032) - Stable-Diffusion AWS Extension Workshop - EC2 Instance
aigcstack-VPC_V0R0Z7ZCRE0ES			

5.2 Delete DynamoDB

If you don't have the option to force the data to be rolled back when installing the stack, then generally you need to manually delete the database vr - demo

5.3 VR module remake

Whether to delete EC 2 carried by the old VR module does not affect the reinstallation of the new digital human VR module. In the development state, digital human rendering and live streaming functions can be updated by directly remanufacturing and updating the VR program. If you need to keep the VR program running under EC 2 of the specified IP, you can bind to an EIP, which is not explained in detail here.

6. Debug method

This system provides three ways to debug

- The VR module's digital human directory has logs in chronological order
- Lambda cloud watch live log
- Press Fn+F12 to enter developer mode on the front-end page to monitor the interface call status when the button is clicked