




Базовые компоненты интернет- технологий (осень 2021 года)

ИУ-5, бакалавриат, 3 семестр





Введение в разработку чат-ботов на платформе Telegram (часть 2)



Использование фреймворка AIOGram

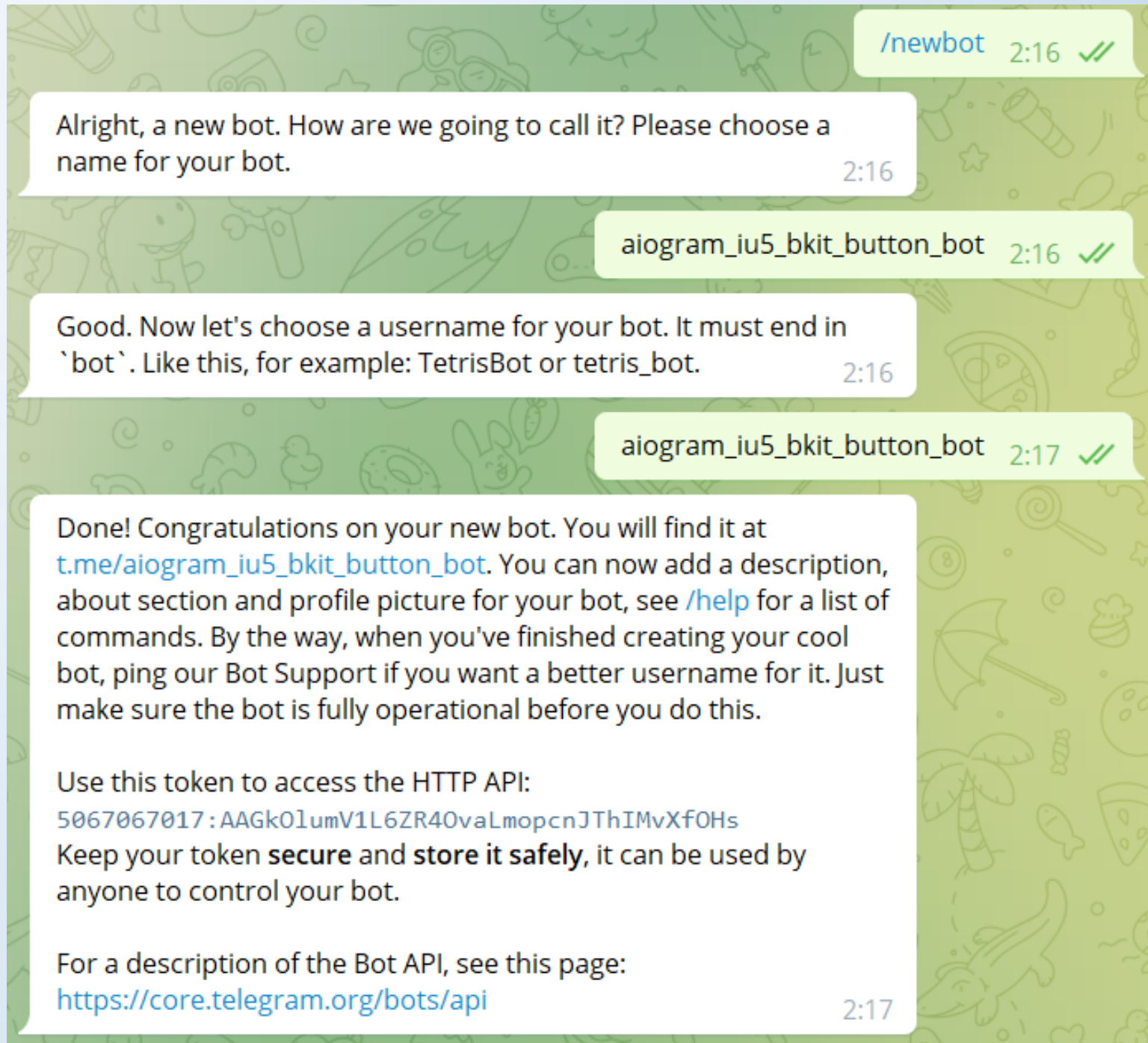
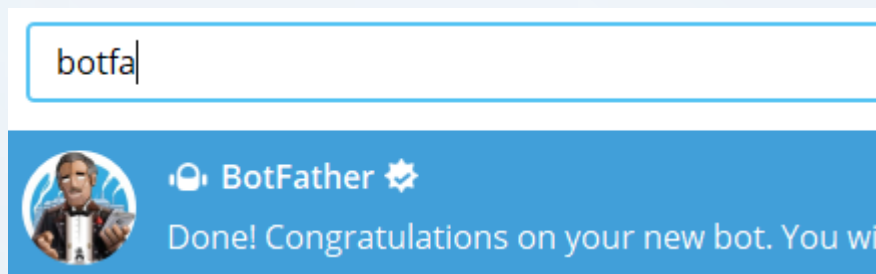
- [Официальный сайт](#)
- [Документация](#)
- [Руководство 1](#)
- [Руководство 2](#)

Создание простого кнопочного бота – aiogram_iu5_bkit_button_bot

Репозиторий:

https://github.com/ugapanyuk/BKIT_2021/tree/main/code/chatbots/aiogram_iu5_bkit_button_bot

Переговоры с BotFather



Запуск бота

aiogram_iu5_bkit_button_bot


Результаты общего поиска

A

aiogram_iu5_bkit_button_bot

@aiogram_iu5_bkit_button_bot

вывести герб 2:51 ✓



Написать сообщение...

вывести герб

вывести фото

/start 2:49 ✓


Пожалуйста, нажмите кнопку 2:49

Написать сообщение...

вывести герб

вывести фото

вывести фото 2:52 ✓



Написать сообщение...

вывести герб

вывести фото

Развертывание бота в облаке

1. Что такое облачные вычисления.
2. Наиболее известные облачные платформы:
 - Amazon Web Services
 - Microsoft Azure
 - Google Cloud Platform
 - Яндекс.Облако
 - VK Cloud Solutions
 - Digital Ocean (скорее не облако, а набор связанных сервисов, очень развитая документация)
3. Популярность платформ

1) Развертывание бота в облаке (EC2)

- Вычислительное облако Amazon Elastic Compute Cloud ([Amazon EC2](#)).
- Для работы с AWS требуется регистрация с привязыванием банковской карты, чем могут воспользоваться злоумышленники. Поэтому при работе с AWS требуется соблюдать повышенные меры безопасности.

Развертывание бота в облаке (EC2)

The screenshot displays the AWS Management Console interface. The browser's address bar shows the URL `https://us-east-2.console.aws.amazon.com/console/home?region=us-east-2#`. The console header includes the AWS logo, a search bar, and the user's name 'gapyu'. The main content area is titled 'AWS Management Console' and features several sections:

- AWS services**: A section with a 'Recently visited services' list containing 'Elastic Beanstalk', 'Lambda', and 'EC2'. Below this is a link to 'All services'.
- Build a solution**: A section with the subtitle 'Get started with simple wizards and automated workflows.' It contains six cards:
 - Launch a virtual machine**: 'With EC2', '2-3 minutes'. This card is circled in red. It features an icon of a server rack.
 - Build a web app**: 'With Elastic Beanstalk', '6 minutes'. It features an icon of a cloud with a person.
 - Build using virtual servers**: 'With Lightsail', '1-2 minutes'. It features an icon of a server with a star.
 - Register a domain**: 'With Route 53', '3 minutes'. It features an icon of a shield with the number 53.
 - Connect an IoT device**: 'With AWS IoT', '5 minutes'. It features an icon of a person with a device.
 - Start migrating to AWS**: 'With AWS MGN', '1-2 minutes'. It features an icon of a cloud with an arrow.
- Getting Started with AWS**: A section with the subtitle 'Learn the fundamentals and start building on AWS now.' It includes links for 'Learn the fundamentals', 'Pick a learning path', and 'Dive deeper'.

On the right side of the console, there are several informational panels:

- Stay connected to your AWS resources on-the-go**: Promotes the AWS Console Mobile App.
- Explore AWS**: A section with sub-sections for 'Upskill Your Team', 'AWS Cloud Training', 'Free AWS Training', and 'AWS Training'.
- Have feedback?**: A section with a link to 'Submit feedback'.

The footer of the console shows the copyright notice '© 2021, Amazon Web Services, Inc. or its affiliates.' and links for 'Privacy', 'Terms', and 'Cookie preferences'.

Развертывание бота в облаке (EC2)

The screenshot shows the AWS Management Console's 'Launch instance wizard' for EC2. The browser tabs include 'Amazon EC2', 'AWS Management Console', and 'Launch instance wizard | EC2 M X'. The URL is 'https://us-east-2.console.aws.amazon.com/ec2/v2/home?region=us-east-2#LaunchInstanceWizard:'. The console header shows the 'Services' menu and a search bar. The wizard progress bar indicates the current step is '1. Choose AMI', followed by '2. Choose Instance Type', '3. Configure Instance', '4. Add Storage', '5. Add Tags', '6. Configure Security Group', and '7. Review'. The main heading is 'Step 1: Choose an Amazon Machine Image (AMI)'. A blue box at the top promotes Amazon RDS with the text 'Are you launching a database instance? Try Amazon RDS.' and a 'Launch a database using RDS' button. Below this, a list of AMIs is shown. The 'Ubuntu Server 20.04 LTS (HVM), SSD Volume Type' AMI is circled in red. Other AMIs include Red Hat Enterprise Linux 8, SUSE Linux Enterprise Server 15 SP2, and various Microsoft Windows Server 2019 editions. Each AMI entry includes its name, description, root device type, virtualization type, and a 'Select' button. The bottom of the console shows a footer with 'Feedback', 'English (US)', and copyright information for 2021 Amazon Web Services, Inc.

Amazon EC2

AWS Management Console

Launch instance wizard | EC2 M X

https://us-east-2.console.aws.amazon.com/ec2/v2/home?region=us-east-2#LaunchInstanceWizard:

Services

Search for services, features, blogs, docs, and more

1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Add Tags 6. Configure Security Group 7. Review

Step 1: Choose an Amazon Machine Image (AMI)

Are you launching a database instance? Try Amazon RDS.

Amazon RDS

Amazon Relational Database Service (RDS) makes it easy to set up, operate, and scale your database on AWS by automating time-consuming database management tasks. With RDS, you can easily deploy Amazon Aurora, MariaDB, MySQL, Oracle, PostgreSQL, and SQL Server databases on AWS. Aurora is a MySQL- and PostgreSQL-compatible, enterprise-class database at 1/10th the cost of commercial databases. [Learn more about RDS](#)

Launch a database using RDS

Red Hat

Free tier eligible

Red Hat Enterprise Linux 8 (HVM), SSD Volume Type - ami-0ba62214afa52bec7 (64-bit x86) / ami-09f8674883d0ad6b8 (64-bit Arm)

Red Hat Enterprise Linux version 8 (HVM), EBS General Purpose (SSD) Volume Type

Root device type: ebs Virtualization type: hvm ENA Enabled: Yes

Select

SUSE Linux

Free tier eligible

SUSE Linux Enterprise Server 15 SP2 (HVM), SSD Volume Type - ami-0f052119b3c7e61d1 (64-bit x86) / ami-0b99ca359a84941ee (64-bit Arm)

SUSE Linux Enterprise Server 15 Service Pack 2 (HVM), EBS General Purpose (SSD) Volume Type. Amazon EC2 AMI Tools preinstalled; Apache 2.2, MySQL 5.5, PHP 5.3, and Ruby 1.8.7 available.

Root device type: ebs Virtualization type: hvm ENA Enabled: Yes

Select

Ubuntu

Free tier eligible

Ubuntu Server 20.04 LTS (HVM), SSD Volume Type - ami-0629230e074c580f2 (64-bit x86) / ami-03b47d2d727e13114 (64-bit Arm)

Ubuntu Server 20.04 LTS (HVM), EBS General Purpose (SSD) Volume Type. Support available from Canonical (<http://www.ubuntu.com/cloud/services>).

Root device type: ebs Virtualization type: hvm ENA Enabled: Yes

Select

Windows

Free tier eligible

Microsoft Windows Server 2019 Base - ami-019a4607ba39bfde6

Microsoft Windows 2019 Datacenter edition. [English]

Root device type: ebs Virtualization type: hvm ENA Enabled: Yes

Select

Windows

Free tier eligible

Microsoft Windows Server 2019 Base with Containers - ami-096b151a05b7e8b5c

Microsoft Windows 2019 Datacenter edition with Containers. [English]

Root device type: ebs Virtualization type: hvm ENA Enabled: Yes

Select

Windows

Free tier eligible

Microsoft Windows Server 2019 with SQL Server 2017 Standard - ami-003d2322ecd658e68

Microsoft Windows 2019 Datacenter edition, Microsoft SQL Server 2017 Standard. [English]

Root device type: ebs Virtualization type: hvm ENA Enabled: Yes

Select

Windows

Free tier eligible

Microsoft Windows Server 2019 with SQL Server 2019 Standard - ami-0b2c6bb0c0eeb503b

Microsoft Windows 2019 Datacenter edition, Microsoft SQL Server 2019 Standard. [English]

Root device type: ebs Virtualization type: hvm ENA Enabled: Yes

Select

Windows

Free tier eligible

Microsoft Windows Server 2019 with SQL Server 2017 Enterprise - ami-0e367acb924881673

Microsoft Windows 2019 Datacenter edition, Microsoft SQL Server 2017 Enterprise. [English]

Root device type: ebs Virtualization type: hvm ENA Enabled: Yes

Select

Feedback English (US)

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Развертывание бота в облаке (EC2)

Amazon EC2

AWS Management Console

Launch instance wizard | EC2 M

https://us-east-2.console.aws.amazon.com/ec2/v2/home?region=us-east-2#LaunchInstanceWizard:

Search for services, features, blogs, docs, and more [Alt+S]

1. Choose AMI2. Choose Instance Type3. Configure Instance4. Add Storage5. Add Tags6. Configure Security Group7. Review

Step 2: Choose an Instance Type

Amazon EC2 provides a wide selection of instance types optimized to fit different use cases. Instances are virtual servers that can run applications. They have varying combinations of CPU, memory, storage, and networking capacity, and give you the flexibility to choose the appropriate mix of resources for your applications. [Learn more](#) about instance types and how they can meet your computing needs.

Filter by: All instance families Current generation Show/Hide Columns

Currently selected: t2.micro (- ECUs, 1 vCPUs, 2.5 GHz, -, 1 GiB memory, EBS only)

	Family	Type	vCPUs	Memory (GiB)	Instance Storage (GB)	EBS-Optimized Available	Network Performance	IPv6 Support
<input type="checkbox"/>	t2	t2.nano	1	0.5	EBS only	-	Low to Moderate	Yes
<input checked="" type="checkbox"/>	t2	t2.micro Free tier eligible	1	1	EBS only	-	Low to Moderate	Yes
<input type="checkbox"/>	t2	t2.xlarge	4	16	EBS only	-	Low to Moderate	Yes
<input type="checkbox"/>	t2	t2.2xlarge	8	32	EBS only	-	Low to Moderate	Yes
<input type="checkbox"/>	t3	t3.nano	2	0.5	EBS only	Yes	Up to 5 Gigabit	Yes
<input type="checkbox"/>	t3	t3.micro	2	1	EBS only	Yes	Up to 5 Gigabit	Yes
<input type="checkbox"/>	t3	t3.small	2	2	EBS only	Yes	Up to 5 Gigabit	Yes
<input type="checkbox"/>	t3	t3.medium	2	4	EBS only	Yes	Up to 5 Gigabit	Yes
<input type="checkbox"/>	t3	t3.large	2	8	EBS only	Yes	Up to 5 Gigabit	Yes
<input type="checkbox"/>	t3	t3.xlarge	4	16	EBS only	Yes	Up to 5 Gigabit	Yes
<input type="checkbox"/>	t3	t3.2xlarge	8	32	EBS only	Yes	Up to 5 Gigabit	Yes
<input type="checkbox"/>	t3a	t3a.nano	2	0.5	EBS only	Yes	Up to 5 Gigabit	Yes
<input type="checkbox"/>	t3a	t3a.micro	2	1	EBS only	Yes	Up to 5 Gigabit	Yes

Micro instances are eligible for the AWS free usage tier. For the first 12 months following your AWS sign-up date, you get up to 750 hours of micro instances each month. When your free usage tier expires or if your usage exceeds the free tier restrictions, you pay standard, pay-as-you-go service rates. [Learn more](#) about free usage tier eligibility and restrictions

Cancel

Previous

Review and Launch

Next: Configure Instance Details

Feedback English (US)

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Развертывание бота в облаке (EC2)

Amazon EC2

AWS Management Console

Launch instance wizard | EC2 M

https://us-east-2.console.aws.amazon.com/ec2/v2/home?region=us-east-2#LaunchInstanceWizard:

Services

Search for services, features, blogs, docs, and more

[Alt+S]

Ohio

gapyu

1. Choose AMI2. Choose Instance Type3. Configure Instance4. Add Storage5. Add Tags6. Configure Security Group7. Review

Step 7: Review Instance Launch

Please review your instance launch details. You can go back to edit changes for each section. Click **Launch** to assign a key pair to your instance and complete the launch process.

⚠

Improve your instances' security. Your security group, launch-wizard-1, is open to the world.
Your instances may be accessible from any IP address. We recommend that you update your security group rules to allow access from known IP addresses only.
You can also open additional ports in your security group to facilitate access to the application or service you're running, e.g., HTTP (80) for web servers. [Edit security groups](#)

▼ AMI Details

Free tier eligible

Ubuntu Server 20.04 LTS (HVM), SSD Volume Type - ami-0629230e074c580f2

Ubuntu Server 20.04 LTS (HVM),EBS General Purpose (SSD) Volume Type. Support available from Canonical (<http://www.ubuntu.com/cloud/services>).
Root Device Type: ebs Virtualization type: hvm

[Edit AMI](#)

▼ Instance Type

Instance Type	ECUs	vCPUs	Memory (GiB)	Instance Storage (GB)	EBS-Optimized Available	Network Performance
t2.micro	-	1	1	EBS only	-	Low to Moderate

[Edit instance type](#)

▼ Security Groups

Security group name

launch-wizard-1

Description

launch-wizard-1 created 2021-12-09T03:53:04.688+03:00

Type ⓘ	Protocol ⓘ	Port Range ⓘ	Source ⓘ	Description ⓘ
SSH	TCP	22	0.0.0.0/0	

[Edit security groups](#)

▶ Instance Details

[Edit instance details](#)

▶ Storage

[Edit storage](#)

▶ Tags

[Edit tags](#)

Cancel

Previous

Launch

Feedback English (US) ▼

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Развертывание бота в облаке (EC2)

Amazon EC2 x AWS Management Console x Launch instance wizard | EC2 M x

https://us-east-2.console.aws.amazon.com/ec2/v2/home?region=us-east-2#LaunchInstanceWizard:

Services Search for services, features, blogs, docs, and more [Alt+S]

1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Add Tags 6. Configure Security Group 7. Review

Step 7: Review Instance Launch

Please review your instance launch details. You can go back to edit changes for each section. Click **Launch** to assign a key pair to your instance and complete the launch process.

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▼ AMI Details [Edit AMI](#)

Ubuntu Server 20.04 LTS (HVM), SSD Volume Type
Free tier eligible
Ubuntu Server 20.04 LTS (HVM), EBS General Purpose (SSD) Volume
Root Device Type: ebs Virtualization type: hvm

▼ Instance Type [Edit instance type](#)

Instance Type	ECUs	vCPUs	Memory (GiB)
t2.micro	-	1	1

▼ Security Groups [Edit security groups](#)

Security group name launch-wizard-1
Description launch-wizard-1 created 2021-12-09T00:00:00.000Z

Type	Protocol	Port Range	Source	Description
SSH	TCP	22	0.0.0.0/0	

▼ Instance Details [Edit instance details](#)

▼ Storage [Edit storage](#)

▼ Tags [Edit tags](#)

Select an existing key pair or create a new key pair X

A key pair consists of a **public key** that AWS stores, and a **private key file** that you store. Together, they allow you to connect to your instance securely. For Windows AMIs, the private key file is required to obtain the password used to log into your instance. For Linux AMIs, the private key file allows you to securely SSH into your instance. Amazon EC2 supports ED25519 and RSA key pair types.

Note: The selected key pair will be added to the set of keys authorized for this instance. Learn more about [removing existing key pairs from a public AMI](#).

Proceed without a key pair

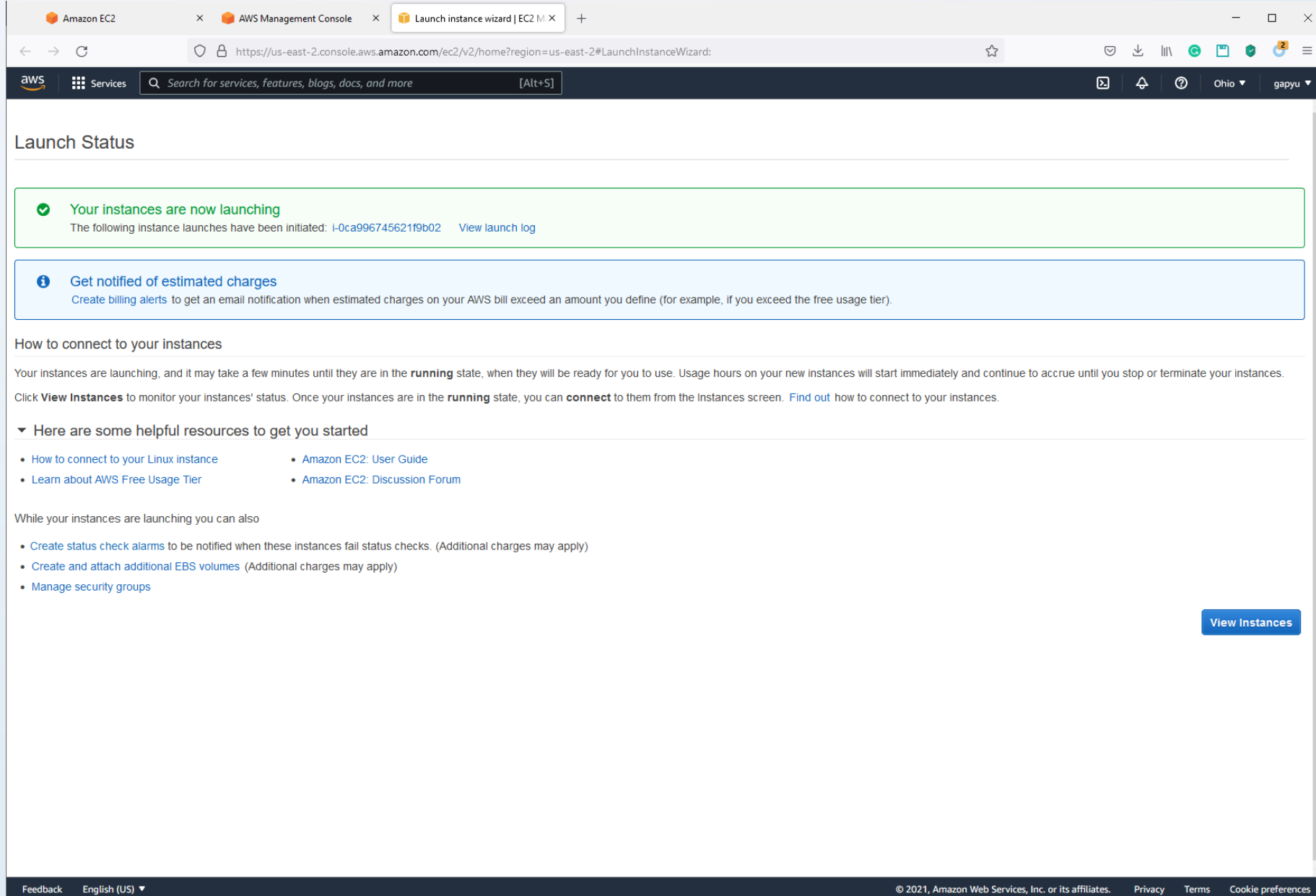
☒ I acknowledge that without a key pair, I can connect to this instance only by using EC2 Instance Connect or if I know the password built into the AMI. Note that EC2 Instance Connect is only supported on Amazon Linux 2 and Ubuntu. [Learn more.](#)

Cancel Launch Instances

Cancel Previous Launch


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Развертывание бота в облаке (EC2)



The screenshot shows the AWS Management Console 'Launch Status' page. The browser tabs include 'Amazon EC2', 'AWS Management Console', and 'Launch instance wizard | EC2 M'. The address bar shows the URL: <https://us-east-2.console.aws.amazon.com/ec2/v2/home?region=us-east-2#LaunchInstanceWizard>. The page header features the AWS logo, a 'Services' menu, a search bar, and the user's location 'Ohio' and name 'gapyu'.

Launch Status

 **Your instances are now launching**
The following instance launches have been initiated: [i-0ca996745621f9b02](#) [View launch log](#)

 **Get notified of estimated charges**
[Create billing alerts](#) to get an email notification when estimated charges on your AWS bill exceed an amount you define (for example, if you exceed the free usage tier).

How to connect to your instances

Your instances are launching, and it may take a few minutes until they are in the **running** state, when they will be ready for you to use. Usage hours on your new instances will start immediately and continue to accrue until you stop or terminate your instances. Click **View Instances** to monitor your instances' status. Once your instances are in the **running** state, you can **connect** to them from the Instances screen. [Find out](#) how to connect to your instances.

▼ Here are some helpful resources to get you started

- [How to connect to your Linux instance](#)
- [Learn about AWS Free Usage Tier](#)
- [Amazon EC2: User Guide](#)
- [Amazon EC2: Discussion Forum](#)

While your instances are launching you can also

- [Create status check alarms](#) to be notified when these instances fail status checks. (Additional charges may apply)
- [Create and attach additional EBS volumes](#) (Additional charges may apply)
- [Manage security groups](#)

[View Instances](#)

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Развертывание бота в облаке (EC2)

The screenshot displays the AWS Management Console interface for the 'Instances' page. The left sidebar contains navigation links for various AWS services, including EC2 Dashboard, EC2 Global View, Events, Tags, Limits, Instances, Images, Elastic Block Store, Network & Security, and Load Balancing. The main content area shows a list of instances with columns for Name, Instance ID, Instance state, Instance type, Status check, Alarm status, Availability Zone, Public IPv4 DNS, and Public IP. A single instance is listed with the ID 'i-0ca996745621f9b02' and state 'Running'. Below the list, the 'Instance: i-0ca996745621f9b02' details page is open, showing tabs for Details, Security, Networking, Storage, Status checks, Monitoring, and Tags. The 'Details' tab is active, displaying a summary of the instance's configuration, including its ID, IP addresses, state, hostname, type, and IAM role.

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS	Public IP
-	i-0ca996745621f9b02	Running	t2.micro	Initializing	No alarms	us-east-2c	ec2-3-14-81-141.us-eas...	3.14.81.1

Instance: i-0ca996745621f9b02

Details | Security | Networking | Storage | Status checks | Monitoring | Tags

Instance summary Info

Instance ID i-0ca996745621f9b02	Public IPv4 address 3.14.81.141 open address	Private IPv4 addresses 172.31.34.17
IPv6 address -	Instance state Running	Public IPv4 DNS ec2-3-14-81-141.us-east-2.compute.amazonaws.com open address
Hostname type IP name: ip-172-31-34-17.us-east-2.compute.internal	Private IP DNS name (IPv4 only) ip-172-31-34-17.us-east-2.compute.internal	Answer private resource DNS name -
Instance type t2.micro	Elastic IP addresses -	VPC ID vpc-068af440f251b11b6
AWS Compute Optimizer finding	IAM Role	Subnet ID

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Развертывание бота в облаке (EC2)

The screenshot shows the AWS Management Console interface for connecting to an EC2 instance. The browser tabs at the top include 'Amazon EC2', 'AWS Management Console', and 'Connect to instance | EC2 Man...'. The address bar shows the URL: `https://us-east-2.console.aws.amazon.com/ec2/v2/home?region=us-east-2#ConnectToInstance:instanceId=i-0ca996745621f9b02`. The console header features the AWS logo, a 'Services' menu, a search bar, and the user's location 'Ohio' and name 'gapyu'.

The main content area displays the breadcrumb path: `EC2 > Instances > i-0ca996745621f9b02 > Connect to instance`. The 'Connect to instance' section has an 'Info' link and a subtitle: 'Connect to your instance i-0ca996745621f9b02 using any of these options'. Below this are four tabs: 'EC2 Instance Connect' (selected), 'Session Manager', 'SSH client', and 'EC2 Serial Console'.

Under the 'EC2 Instance Connect' tab, the following information is displayed:

- Instance ID: `i-0ca996745621f9b02`
- Public IP address: `3.14.81.141`
- User name: `ubuntu` (entered in a text field)

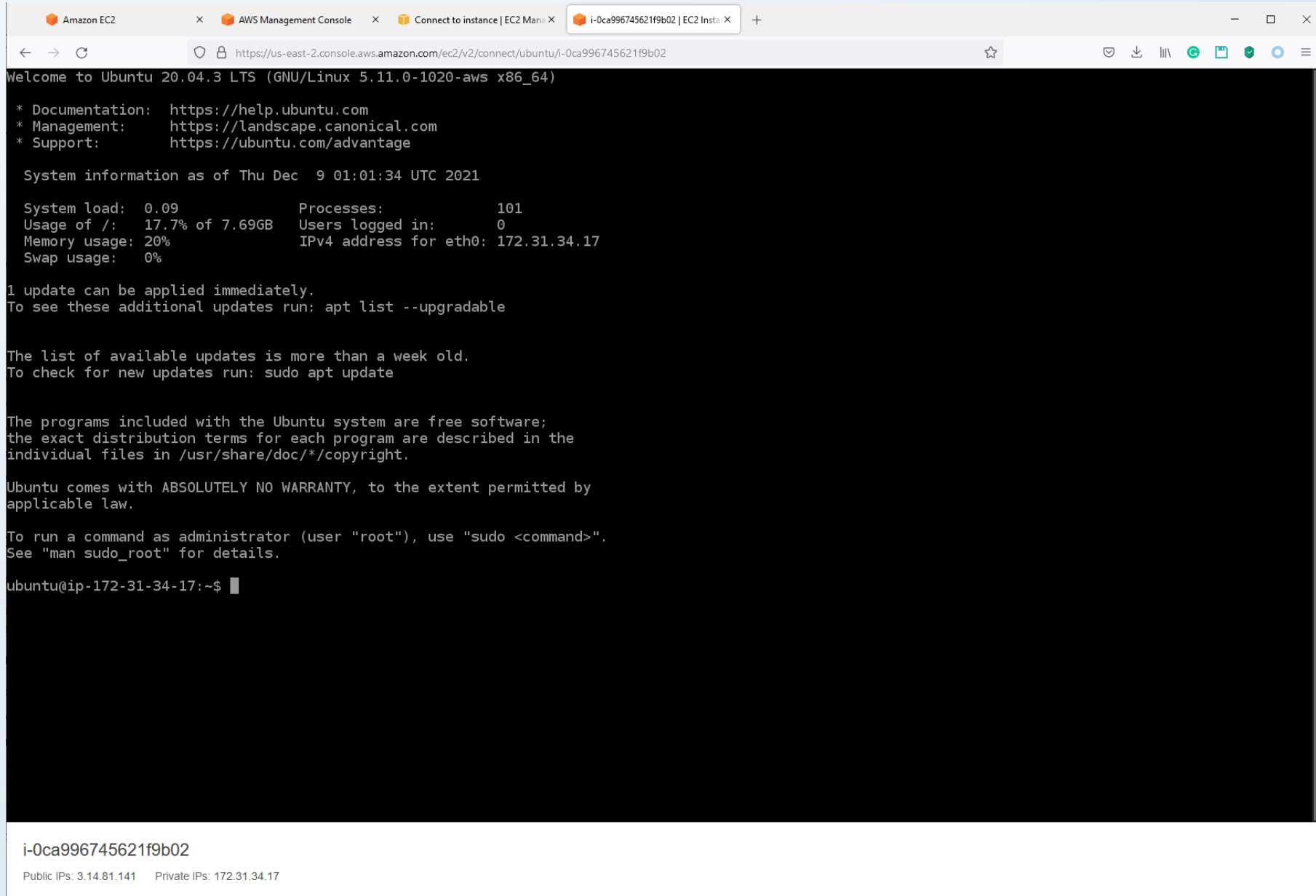
A note below the user name field states: 'Connect using a custom user name, or use the default user name ubuntu for the AMI used to launch the instance.'

A blue-bordered box contains a note: 'Note: In most cases, the guessed user name is correct. However, read your AMI usage instructions to check if the AMI owner has changed the default AMI user name.'

At the bottom of the panel are two buttons: 'Cancel' and 'Connect'.

The footer of the console includes a 'Feedback' link, the language 'English (US)', and copyright information: '© 2021, Amazon Web Services, Inc. or its affiliates.' along with links for 'Privacy', 'Terms', and 'Cookie preferences'.

Развертывание бота в облаке (EC2)



The screenshot displays the AWS Management Console interface for connecting to an EC2 instance. The browser tabs at the top include 'Amazon EC2', 'AWS Management Console', 'Connect to instance | EC2 Man...', and 'i-0ca996745621f9b02 | EC2 Insta...'. The address bar shows the URL: `https://us-east-2.console.aws.amazon.com/ec2/v2/connect/ubuntu/i-0ca996745621f9b02`. The terminal window shows the following output:

```
Welcome to Ubuntu 20.04.3 LTS (GNU/Linux 5.11.0-1020-aws x86_64)

* Documentation:  https://help.ubuntu.com
* Management:    https://landscape.canonical.com
* Support:        https://ubuntu.com/advantage

System information as of Thu Dec  9 01:01:34 UTC 2021

System load:  0.09           Processes:            101
Usage of /:   17.7% of 7.69GB Users logged in:       0
Memory usage: 20%           IPv4 address for eth0: 172.31.34.17
Swap usage:   0%

1 update can be applied immediately.
To see these additional updates run: apt list --upgradable

The list of available updates is more than a week old.
To check for new updates run: sudo apt update

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

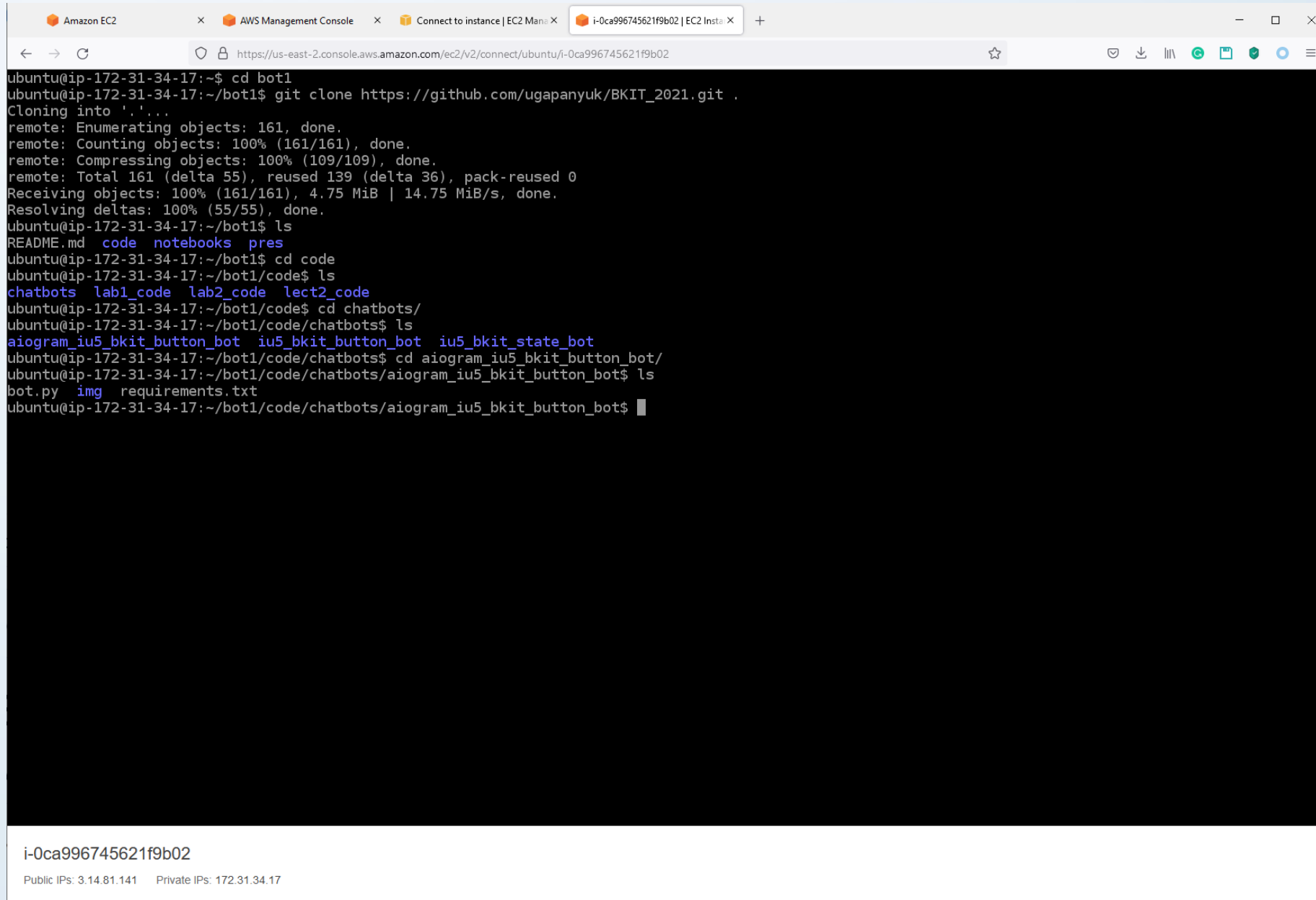
Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

ubuntu@ip-172-31-34-17:~$
```

At the bottom of the console, the instance ID `i-0ca996745621f9b02` is displayed, along with its public and private IP addresses: `Public IPs: 3.14.81.141 Private IPs: 172.31.34.17`.

Развертывание бота в облаке (EC2)

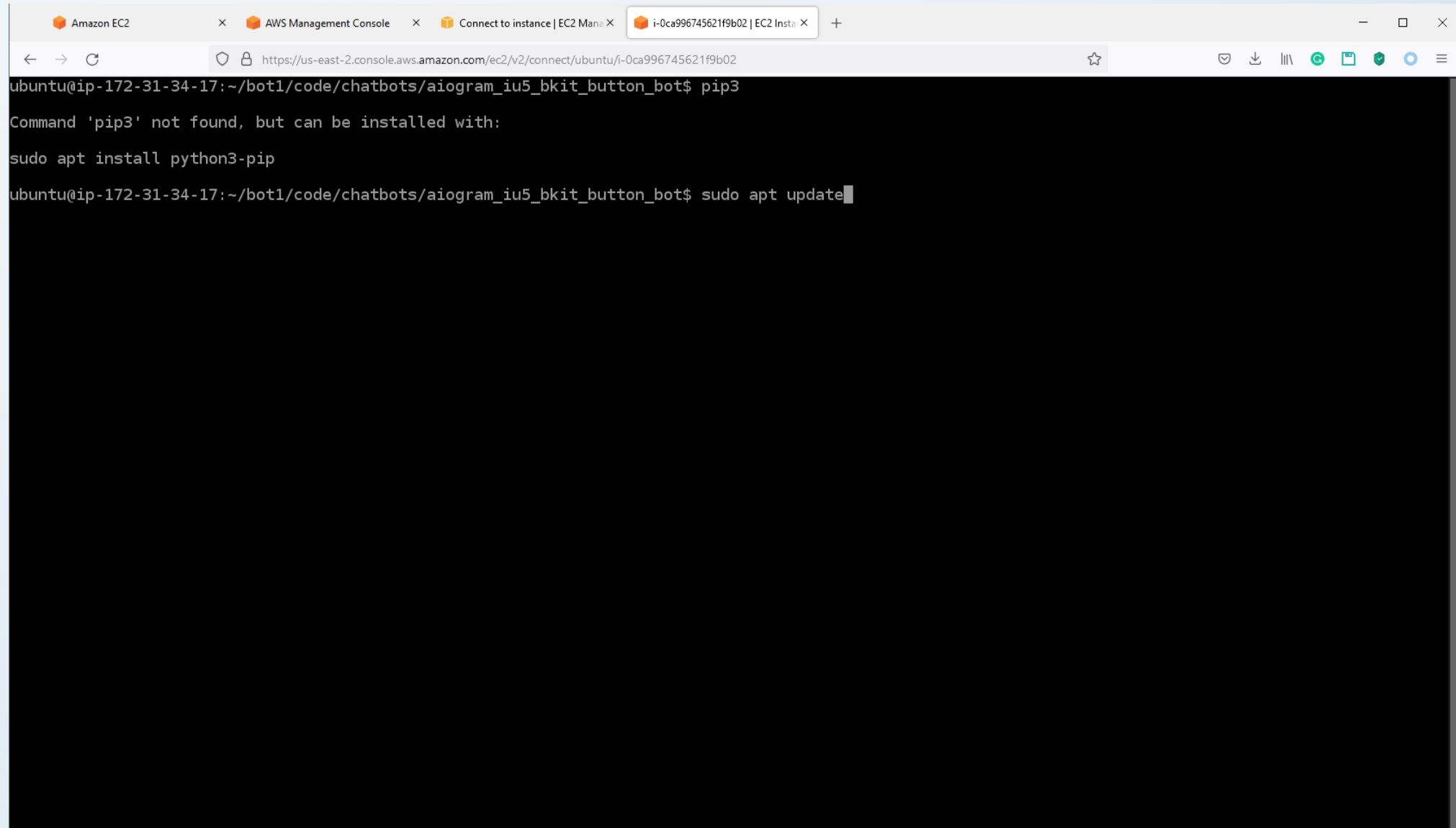


```
Amazon EC2 x AWS Management Console x Connect to instance | EC2 Man... x i-0ca996745621f9b02 | EC2 Inst... x
https://us-east-2.console.aws.amazon.com/ec2/v2/connect/ubuntu/i-0ca996745621f9b02
ubuntu@ip-172-31-34-17:~$ cd bot1
ubuntu@ip-172-31-34-17:~/bot1$ git clone https://github.com/ugapanyuk/BKIT_2021.git .
Cloning into '.'...
remote: Enumerating objects: 161, done.
remote: Counting objects: 100% (161/161), done.
remote: Compressing objects: 100% (109/109), done.
remote: Total 161 (delta 55), reused 139 (delta 36), pack-reused 0
Receiving objects: 100% (161/161), 4.75 MiB | 14.75 MiB/s, done.
Resolving deltas: 100% (55/55), done.
ubuntu@ip-172-31-34-17:~/bot1$ ls
README.md  code  notebooks  pres
ubuntu@ip-172-31-34-17:~/bot1$ cd code
ubuntu@ip-172-31-34-17:~/bot1/code$ ls
chatbots  lab1_code  lab2_code  lect2_code
ubuntu@ip-172-31-34-17:~/bot1/code$ cd chatbots/
ubuntu@ip-172-31-34-17:~/bot1/code/chatbots$ ls
aiogram_iu5_bkit_button_bot  iu5_bkit_button_bot  iu5_bkit_state_bot
ubuntu@ip-172-31-34-17:~/bot1/code/chatbots$ cd aiogram_iu5_bkit_button_bot/
ubuntu@ip-172-31-34-17:~/bot1/code/chatbots/aiogram_iu5_bkit_button_bot$ ls
bot.py  img  requirements.txt
ubuntu@ip-172-31-34-17:~/bot1/code/chatbots/aiogram_iu5_bkit_button_bot$
```

i-0ca996745621f9b02

Public IPs: 3.14.81.141 Private IPs: 172.31.34.17

Развертывание бота в облаке (EC2)



The screenshot shows the AWS Management Console interface with a terminal window open for an EC2 instance. The terminal displays the following commands and output:

```
ubuntu@ip-172-31-34-17:~/bot1/code/chatbots/aiogram_iu5_bkit_button_bot$ pip3
Command 'pip3' not found, but can be installed with:
sudo apt install python3-pip
ubuntu@ip-172-31-34-17:~/bot1/code/chatbots/aiogram_iu5_bkit_button_bot$ sudo apt update
```

The browser tabs at the top include "Amazon EC2", "AWS Management Console", "Connect to instance | EC2 Mana...", and "i-0ca996745621f9b02 | EC2 Insta...". The address bar shows the URL <https://us-east-2.console.aws.amazon.com/ec2/v2/connect/ubuntu/i-0ca996745621f9b02>.

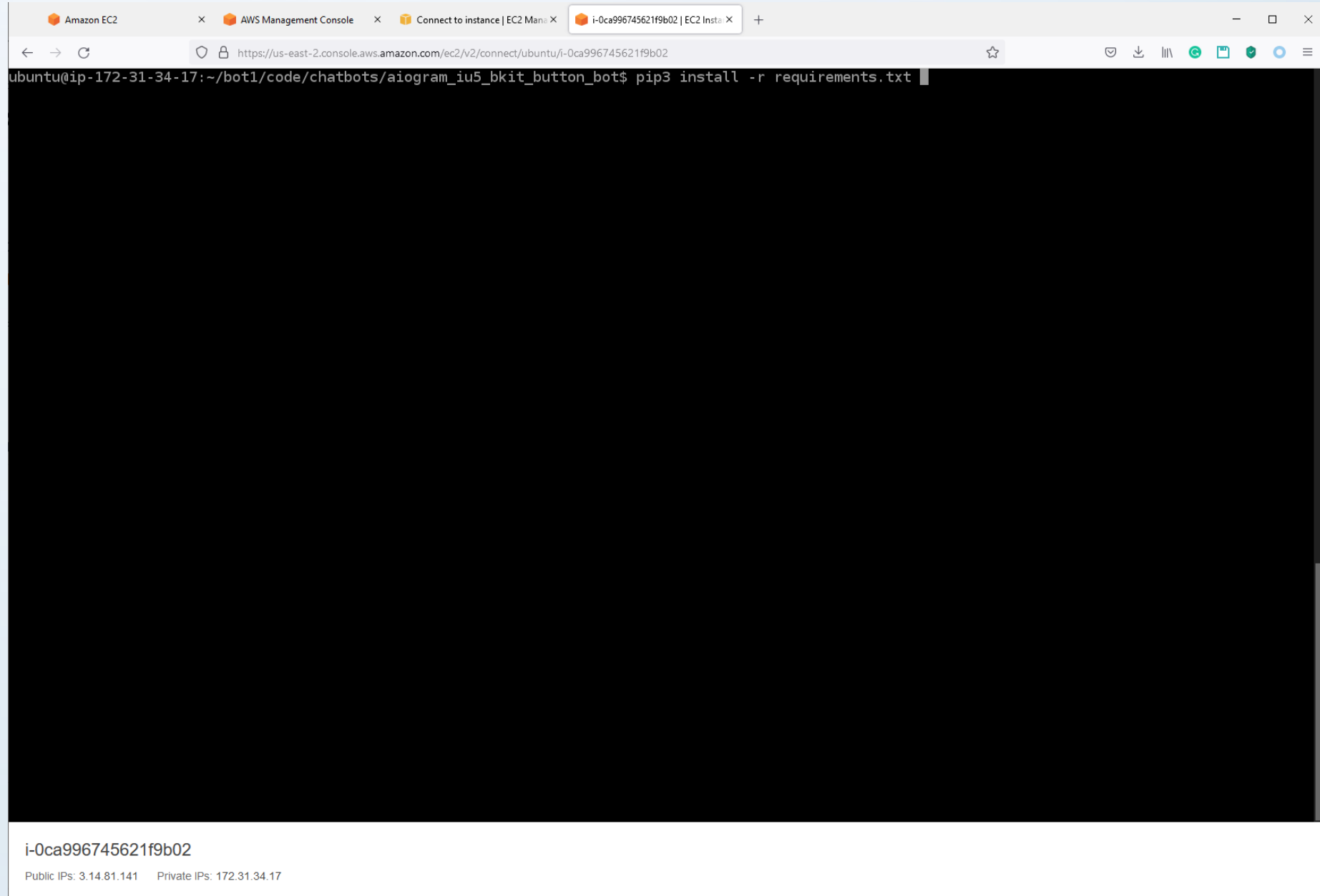
Развертывание бота в облаке (EC2)

```
Amazon EC2 x AWS Management Console x Connect to instance | EC2 Man... x i-0ca996745621f9b02 | EC2 Insta... x +
https://us-east-2.console.aws.amazon.com/ec2/v2/connect/ubuntu/i-0ca996745621f9b02
ubuntu@ip-172-31-34-17:~/bot1/code/chatbots/aiogram_iu5_bkit_button_bot$ sudo apt install python3-pip
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  binutils binutils-common binutils-x86-64-linux-gnu build-essential cpp cpp-9 dpkg-dev fakeroot g++ g++-9 gcc gcc-9 gcc-9-base
  libalgorithm-diff-perl libalgorithm-diff-xs-perl libalgorithm-merge-perl libasan5 libatomic1 libbinutils libc-dev-bin libc6-dev libcc1-0
  libcrypt-dev libctf-nobfd0 libctf0 libdpkg-perl libexpat1-dev libfakeroot libfile-fcntllock-perl libgcc-9-dev libgomp1 libisl22 libitm1 liblsan0
  libmpc3 libpython3-dev libpython3.8-dev libquadmath0 libstdc++-9-dev libtsan0 libubsan1 linux-libc-dev make manpages-dev python-pip-whl python3-dev
  python3-wheel python3.8-dev zlib1g-dev
Suggested packages:
  binutils-doc cpp-doc gcc-9-locales debian-keyring g++-multilib g++-9-multilib gcc-9-doc gcc-multilib autoconf automake libtool flex bison gdb
  gcc-doc gcc-9-multilib glibc-doc bzr libstdc++-9-doc make-doc
The following NEW packages will be installed:
  binutils binutils-common binutils-x86-64-linux-gnu build-essential cpp cpp-9 dpkg-dev fakeroot g++ g++-9 gcc gcc-9 gcc-9-base
  libalgorithm-diff-perl libalgorithm-diff-xs-perl libalgorithm-merge-perl libasan5 libatomic1 libbinutils libc-dev-bin libc6-dev libcc1-0
  libcrypt-dev libctf-nobfd0 libctf0 libdpkg-perl libexpat1-dev libfakeroot libfile-fcntllock-perl libgcc-9-dev libgomp1 libisl22 libitm1 liblsan0
  libmpc3 libpython3-dev libpython3.8-dev libquadmath0 libstdc++-9-dev libtsan0 libubsan1 linux-libc-dev make manpages-dev python-pip-whl python3-dev
  python3-wheel python3.8-dev zlib1g-dev
0 upgraded, 50 newly installed, 0 to remove and 40 not upgraded.
Need to get 49.8 MB of archives.
After this operation, 214 MB of additional disk space will be used.
Do you want to continue? [Y/n] Y
Get:1 http://us-east-2.ec2.archive.ubuntu.com/ubuntu focal-updates/main amd64 binutils-common amd64 2.34-6ubuntu1.3 [207 kB]
Get:2 http://us-east-2.ec2.archive.ubuntu.com/ubuntu focal-updates/main amd64 libbinutils amd64 2.34-6ubuntu1.3 [474 kB]
Get:3 http://us-east-2.ec2.archive.ubuntu.com/ubuntu focal-updates/main amd64 libctf-nobfd0 amd64 2.34-6ubuntu1.3 [47.4 kB]
Get:4 http://us-east-2.ec2.archive.ubuntu.com/ubuntu focal-updates/main amd64 libctf0 amd64 2.34-6ubuntu1.3 [46.6 kB]
Get:5 http://us-east-2.ec2.archive.ubuntu.com/ubuntu focal-updates/main amd64 binutils-x86-64-linux-gnu amd64 2.34-6ubuntu1.3 [1613 kB]
Get:6 http://us-east-2.ec2.archive.ubuntu.com/ubuntu focal-updates/main amd64 binutils amd64 2.34-6ubuntu1.3 [3380 B]
Get:7 http://us-east-2.ec2.archive.ubuntu.com/ubuntu focal-updates/main amd64 libc-dev-bin amd64 2.31-0ubuntu9.2 [71.8 kB]
Get:8 http://us-east-2.ec2.archive.ubuntu.com/ubuntu focal-updates/main amd64 linux-libc-dev amd64 5.4.0-91.102 [1127 kB]
Setting up fakeroot (1.24-1) ...
update-alternatives: using /usr/bin/fakeroot-sysv to provide /usr/bin/fakeroot (fakeroot) in auto mode
Setting up make (4.2.1-1.2) ...
Setting up libquadmath0:amd64 (10.3.0-1ubuntu1~20.04) ...
Setting up libmpc3:amd64 (1.1.0-1) ...
Setting up libatomic1:amd64 (10.3.0-1ubuntu1~20.04) ...
Setting up libdpkg-perl (1.19.7ubuntu3) ...
Setting up libubsan1:amd64 (10.3.0-1ubuntu1~20.04) ...
Setting up libcrypt-dev:amd64 (1:4.4.10-10ubuntu4) ...
Setting up libisl22:amd64 (0.22.1-1) ...
Setting up python-pip-whl (20.0.2-5ubuntu1.6) ...
Setting up libbinutils:amd64 (2.34-6ubuntu1.3) ...
Setting up libc-dev-bin (2.31-0ubuntu9.2) ...
Setting up libalgorithm-diff-xs-perl (0.04-6) ...
```

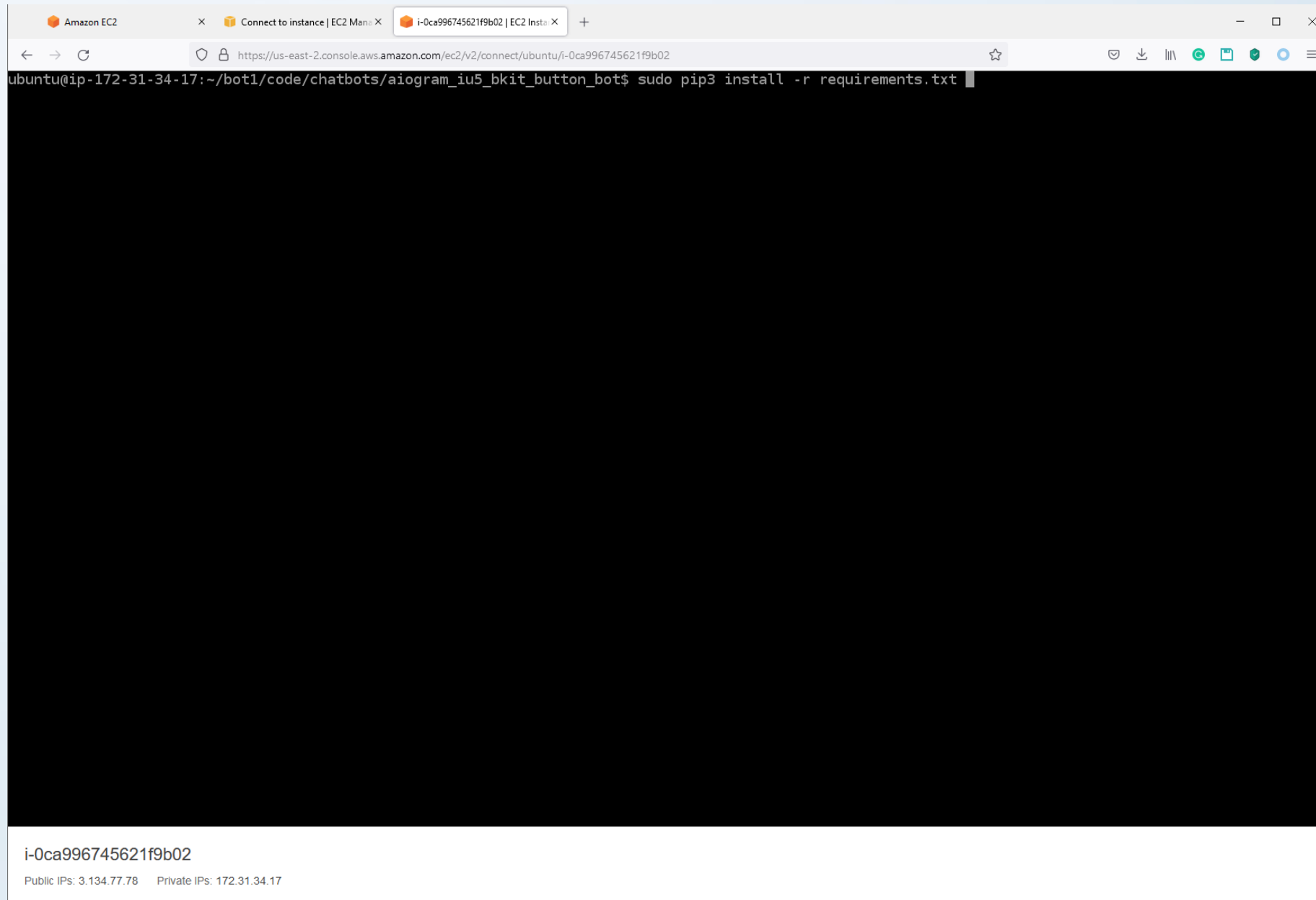
i-0ca996745621f9b02

Public IPs: 3.14.81.141 Private IPs: 172.31.34.17

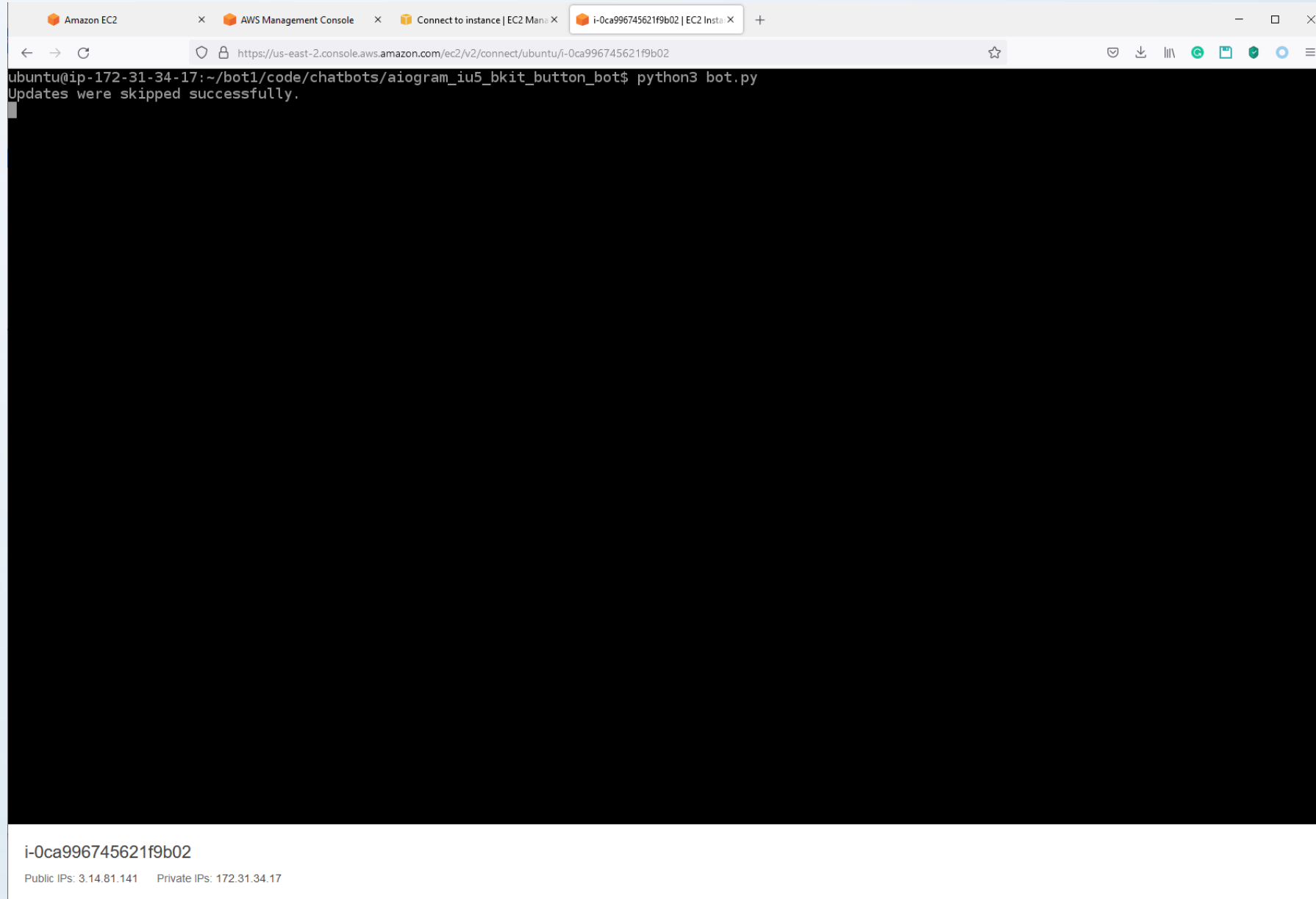
Развертывание бота в облаке (EC2)



Развертывание бота в облаке (EC2)



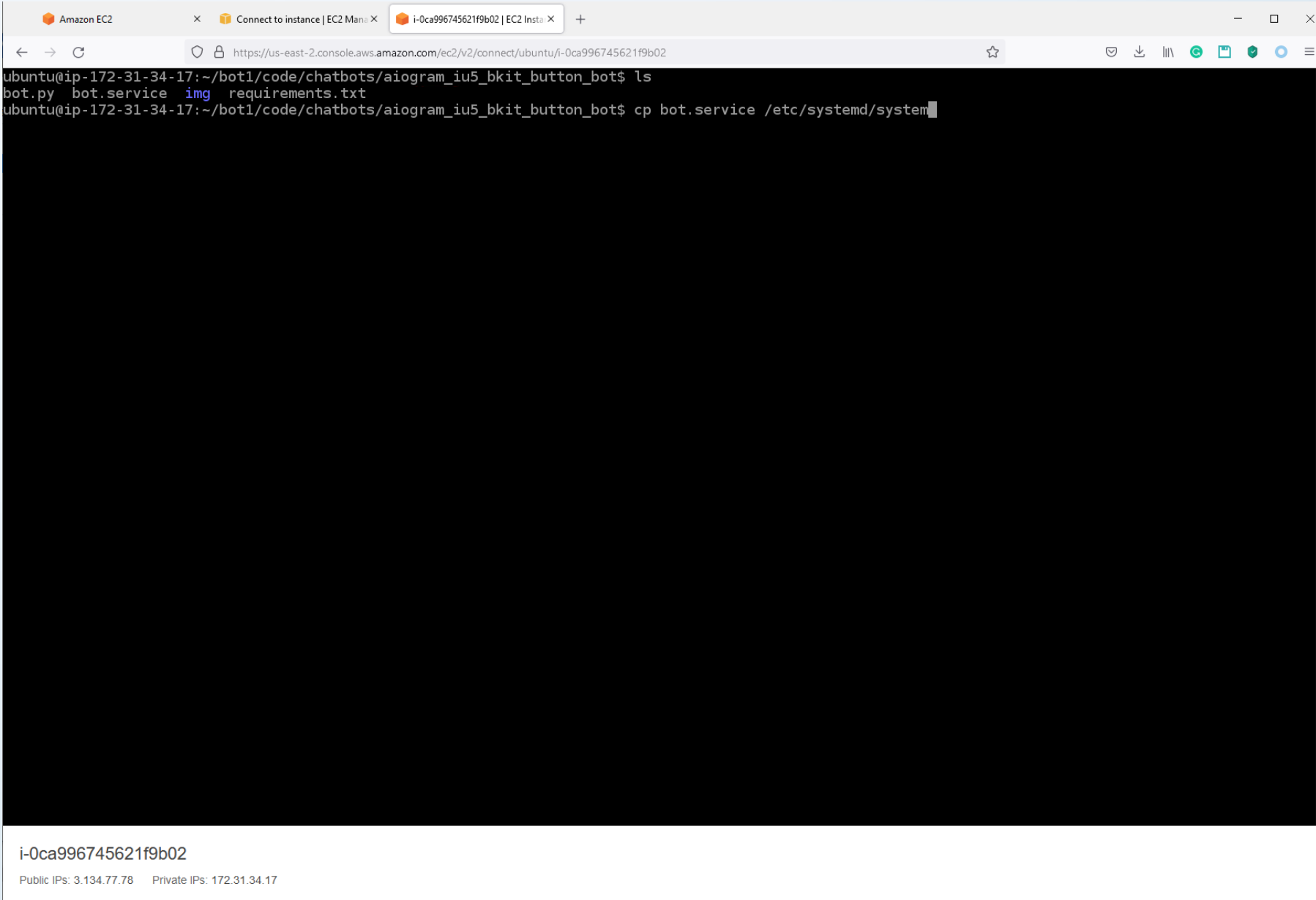
Развертывание бота в облаке (EC2)



Развертывание бота в облаке (EC2)

- После этих действий бот будет работать до закрытия консоли операционной системы.
- Для того, чтобы бот запускался автоматически при запуске виртуальной машины, необходимо использовать команду [systemctl](#).
 - Скопировать файл bot.service в /etc/systemd/system/
 - Запустить сервис

Развертывание бота в облаке (EC2)

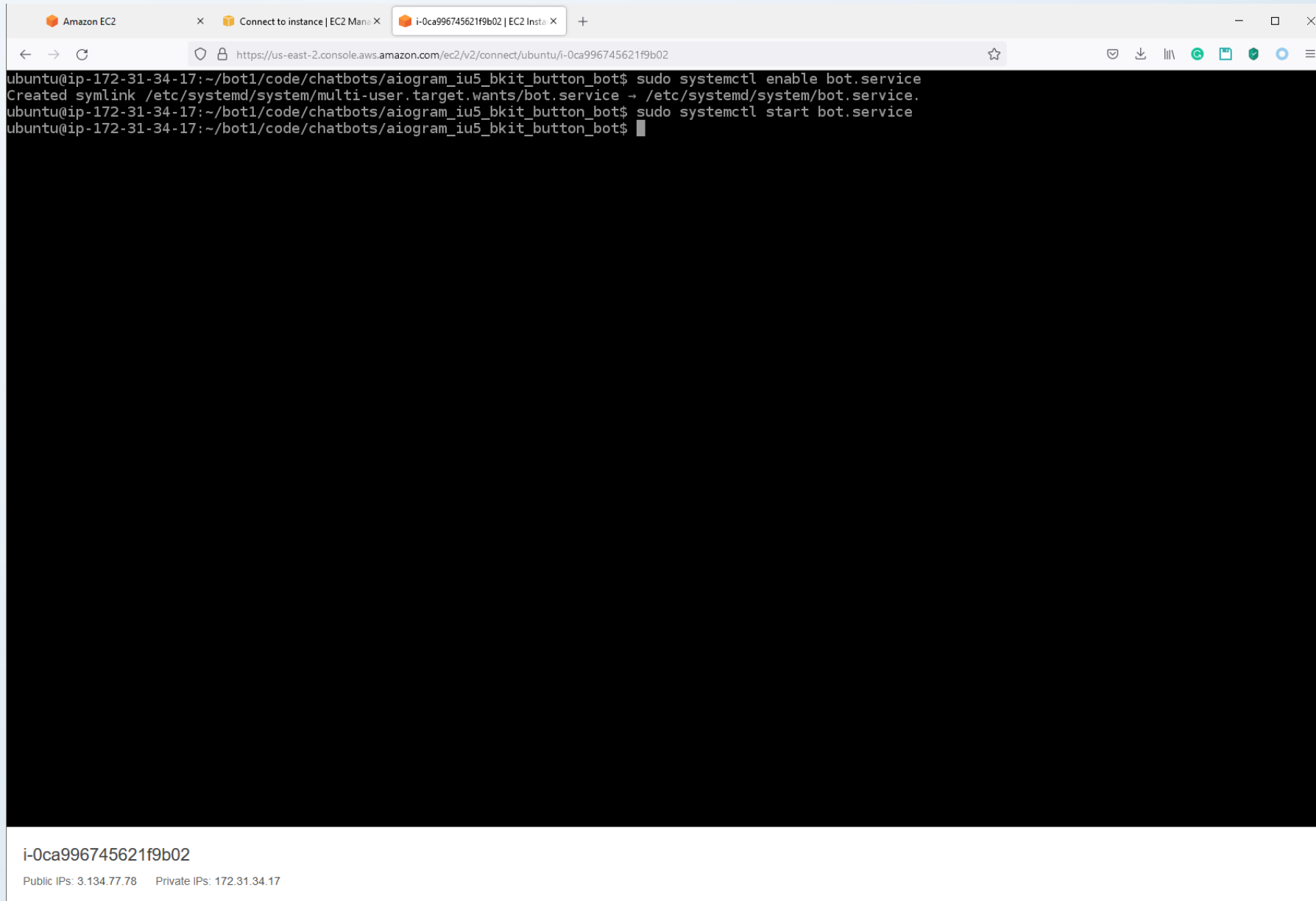


The screenshot shows the AWS Management Console interface for connecting to an EC2 instance. The browser tabs include 'Amazon EC2', 'Connect to instance | EC2 Mana...', and 'i-0ca996745621f9b02 | EC2 Insta...'. The address bar shows the URL 'https://us-east-2.console.aws.amazon.com/ec2/v2/connect/ubuntu/i-0ca996745621f9b02'. The terminal window displays the following commands and output:

```
ubuntu@ip-172-31-34-17:~/bot1/code/chatbots/aiogram_iu5_bkit_button_bot$ ls
bot.py  bot.service  img  requirements.txt
ubuntu@ip-172-31-34-17:~/bot1/code/chatbots/aiogram_iu5_bkit_button_bot$ cp bot.service /etc/systemd/system
```

At the bottom of the console, the instance ID 'i-0ca996745621f9b02' is displayed, along with its public and private IP addresses: 'Public IPs: 3.134.77.78' and 'Private IPs: 172.31.34.17'.

Развертывание бота в облаке (EC2)



The screenshot displays the Amazon EC2 console interface. At the top, there are tabs for 'Amazon EC2', 'Connect to instance | EC2 Man...', and 'i-0ca996745621f9b02 | EC2 Inst...'. The browser address bar shows the URL: <https://us-east-2.console.aws.amazon.com/ec2/v2/connect/ubuntu/i-0ca996745621f9b02>. The main area is a terminal window for an Ubuntu instance. The terminal text is as follows:

```
ubuntu@ip-172-31-34-17:~/bot1/code/chatbots/aiogram_iu5_bkit_button_bot$ sudo systemctl enable bot.service
Created symlink /etc/systemd/system/multi-user.target.wants/bot.service -> /etc/systemd/system/bot.service.
ubuntu@ip-172-31-34-17:~/bot1/code/chatbots/aiogram_iu5_bkit_button_bot$ sudo systemctl start bot.service
ubuntu@ip-172-31-34-17:~/bot1/code/chatbots/aiogram_iu5_bkit_button_bot$
```

At the bottom of the console, the instance ID 'i-0ca996745621f9b02' is displayed, along with its public and private IP addresses: 'Public IPs: 3.134.77.78' and 'Private IPs: 172.31.34.17'.

Развертывание бота в облаке (EC2)

- После этих действий бот будет начинать работу при загрузке операционной системы.
- При развертывании сложных проектов (требующих серверов СУБД и т.д.) обычно используют [Docker](#).
 - [Docker для начинающих](#)
 - [PostgreSQL в Docker](#)
 - [Docker и Kubernetes](#)

2) Развертывание бота с использованием AWS Lambda

- Сейчас боты традиционно развертывают с использованием механизма «[бессерверных вычислений](#)».
- Будем использовать сервис [AWS Lambda](#).
 - [Статья 1](#)
 - [Статья 2](#)
 - [Статья 3](#)