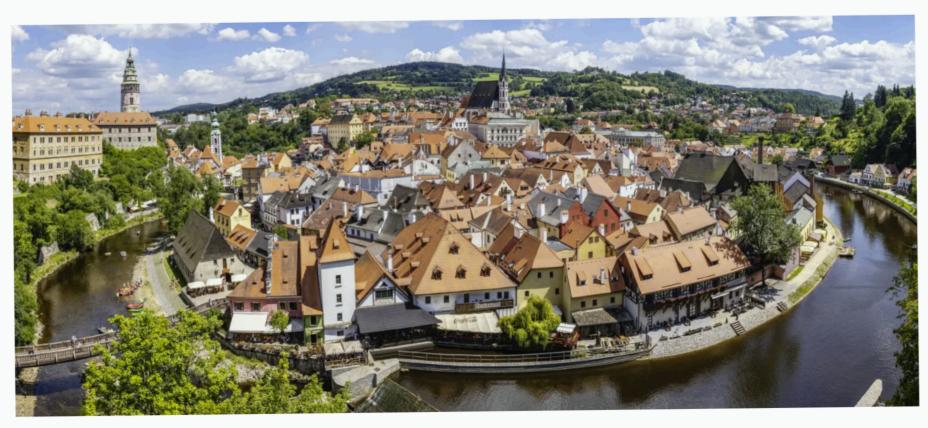
# Connecting to the Amazon instance

# Find your Amazon instance IP address

Intensive and immersive training opportunities

## 2022 WORKSHOP ON POPULATION AND SPECIATION GENOMICS, CESKY KRUMLOV



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Britta S. Meyer, Max Planck Institute for Evolutionary Biology, Plön, Germany

Walter Salzburger, University of Basel, Switzerland

Jan Stefka, University of South Bohemia České Budějovice, Czech Republic

Emiliano Trucchi, Universita Politecnica delle Marche, Ancona, Italy

#### **ANNOUNCEMENTS**

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#### **LINKS**

- Amazon instances IP addresses
- Map of important locations in Český Krumlov

#### **SCHEDULE**

Week 1:5-11 June, 2022

DATE DAY TIME PRESENTER TOPIC LOCATION

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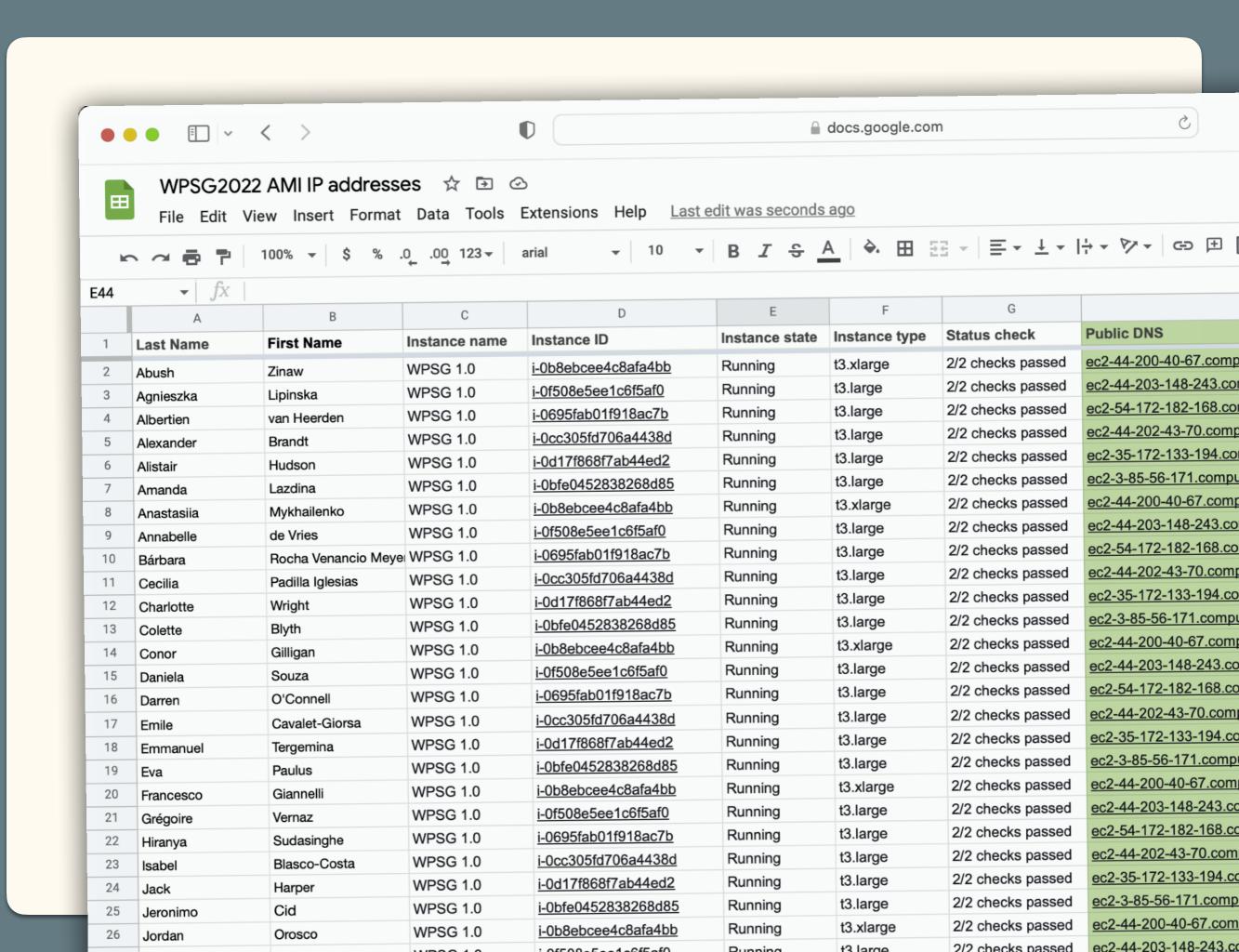
#### LINKS

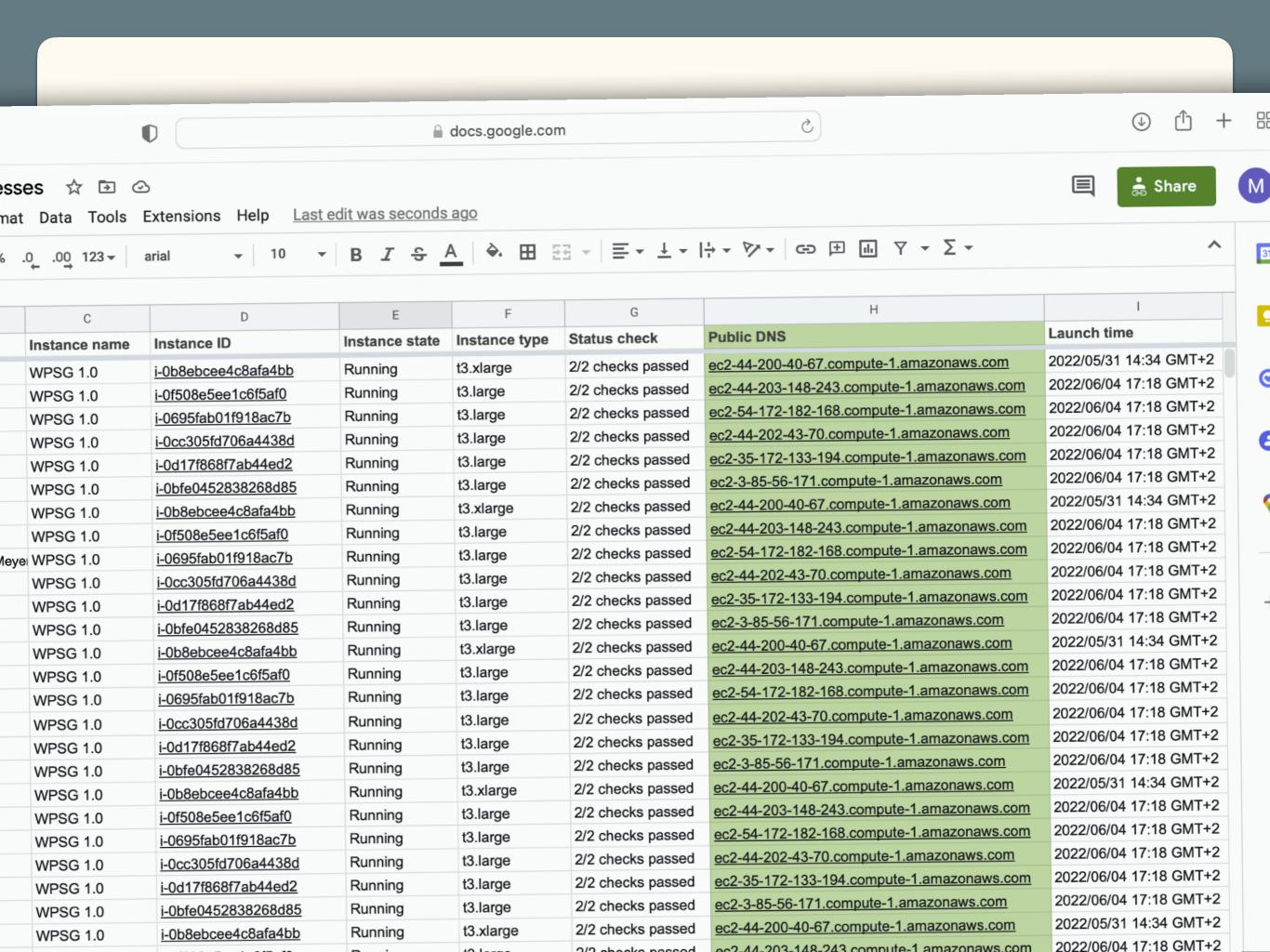
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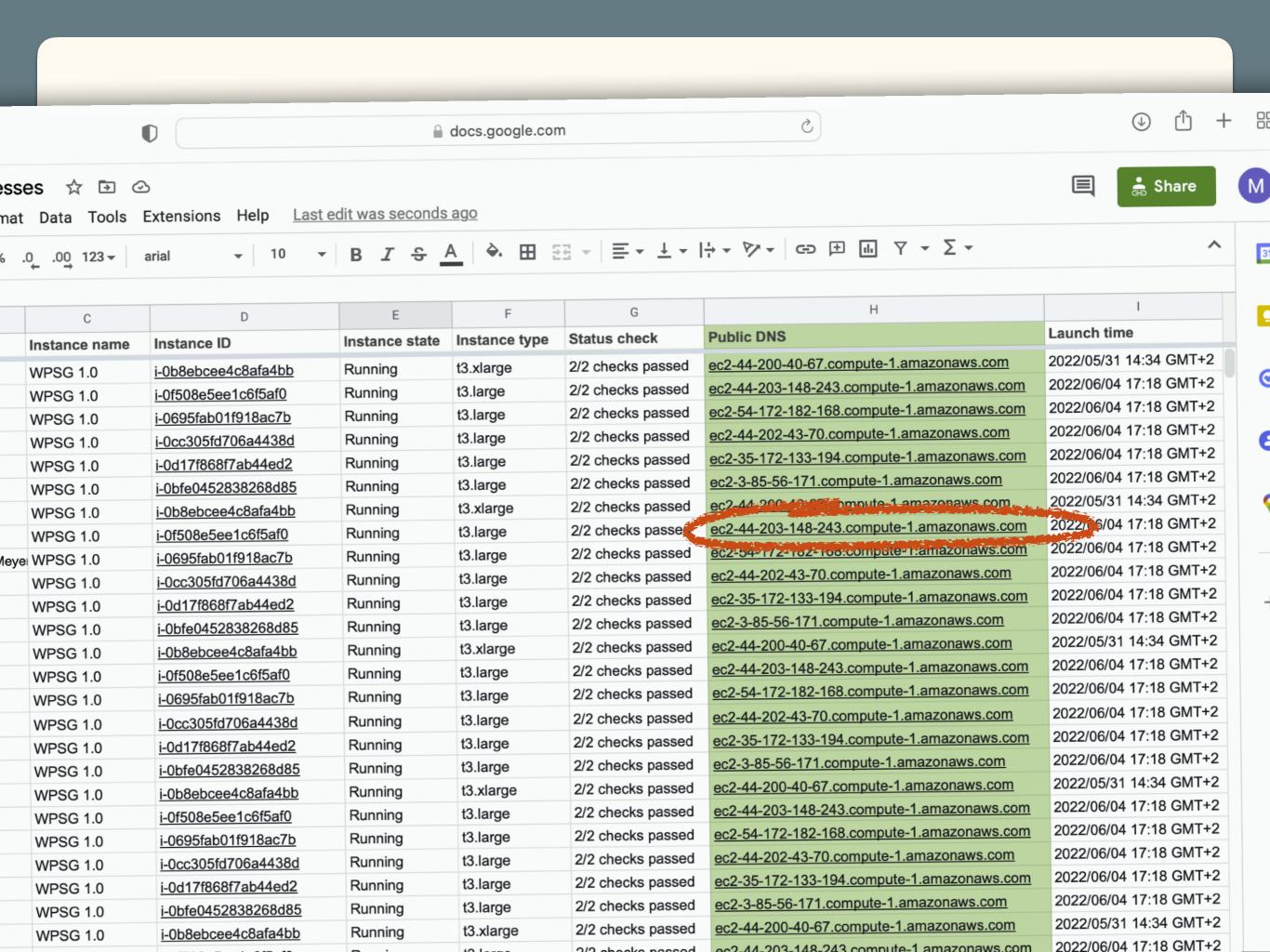
#### **SCHEDULE**

Week 1: 5-11 June, 2022

DATE DAY TIME PRESENTER TOPIC LOCATION







# Connecting to the Amazon instance

- 1. SSH / SCP
- 2. Guacamole
- 3. RStudio
- 4. Jupyter Notebooks

```
m_matschiner — -zsh — 80×24
Last login: Sun Jun 5 11:49:37 on ttys008
22-06-05 | 11:49 | ~
% ssh wpsg@ec2-44-202-43-70.compute-1.amazonaws.com
```

```
m_matschiner — -zsh — 80×24
Last login: Sun Jun 5 11:49:37 on ttys008
in 22 16 45 11:49 ~
% sh wpsg@ec2-44-202-43-70.compute-1.amazonaws.com
```

```
■ m_matschiner — ssh wpsg@ec2-44-202-43-70.compute-1.amazonaws....

Last login: Sun Jun 5 11:49:37 on ttys008

1 22-06-05|11:49|~

1 ssh wpsg@ec2-44-202-43-70.compute-1.amazonaws.com

The authenticity of host 'ec2-44-202-43-70.compute-1.amazonaws.com (44.202.43.70)' can't be established.

ED25519 key fingerprint is SHA256:C8t4TGUqcHcHHCTbog334AStCRjPiYJa5g6GwhJR90c.

This key is not known by any other names

Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
```

```
■ m_matschiner — ssh wpsg@ec2-44-202-43-70.compute-1.amazonaws....

Last login: Sun Jun 5 11:49:37 on ttys008

□ 22-06-05|11:49|~

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The authenticity of host 'ec2-44-202-43-70.compute-1.amazonaws.com (44.202.43.70)' can't be established.

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```
m_matschiner — ssh wpsg@ec2-44-202-43-70.compute-1.amazonaws....

Last login: Sun Jun 5 11:49:37 on ttys008

22-06-05|11:49|~

ssh wpsg@ec2-44-202-43-70.compute-1.amazonaws.com

The authenticity of host 'ec2-44-202-43-70.compute-1.amazonaws.com (44.202.43.70)' can't be established.

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This key is not known by any other names

Are you sure you want to continue connecting (yes/no/[fingerprint])? yes

Warning: Permanently added 'ec2-44-202-43-70.compute-1.amazonaws.com' (ED25519)

to the list of known hosts.

wpsg@ec2-44-202-43-70.compute-1.amazonaws.com's password:
```

```
■ m_matschiner — ssh wpsg@ec2-44-202-43-70.compute-1.amazonaws....

Last login: Sun Jun 5 11:49:37 on ttys008

D 22-06-05|11:49|~

Ssh wpsg@ec2-44-202-43-70.compute-1.amazonaws.com

The authenticity of host 'ec2-44-202-43-70.compute-1.amazonaws.com (44.202.43.70)' can't be established.

ED25519 key fingerprint is SHA256:C8t4TGUqcHcHHCTbog334AStCRjPiYJa5g6GwhJR90c.

This key is not known by any other names

Are you sure you want to continue connecting (yes/no/[fingerprint])? yes

Warning: Permanently added 'ec2-44-202-43-70.compute-1.amazonaws.com' (ED25519)

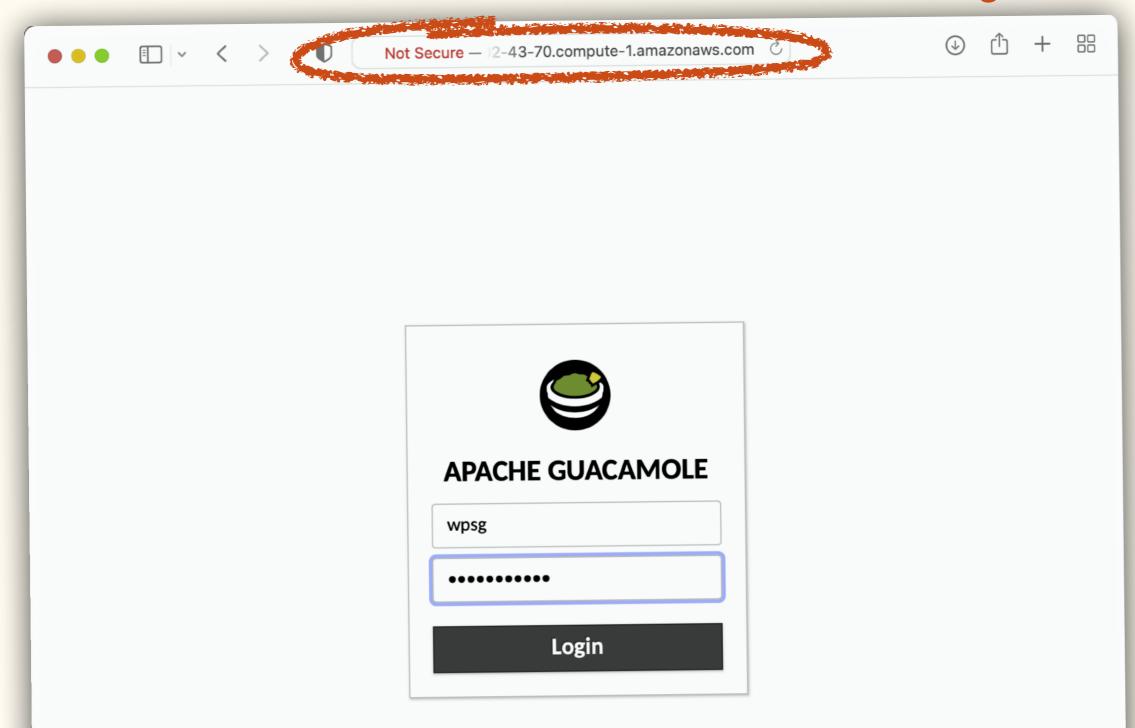
to the list of known hosts.

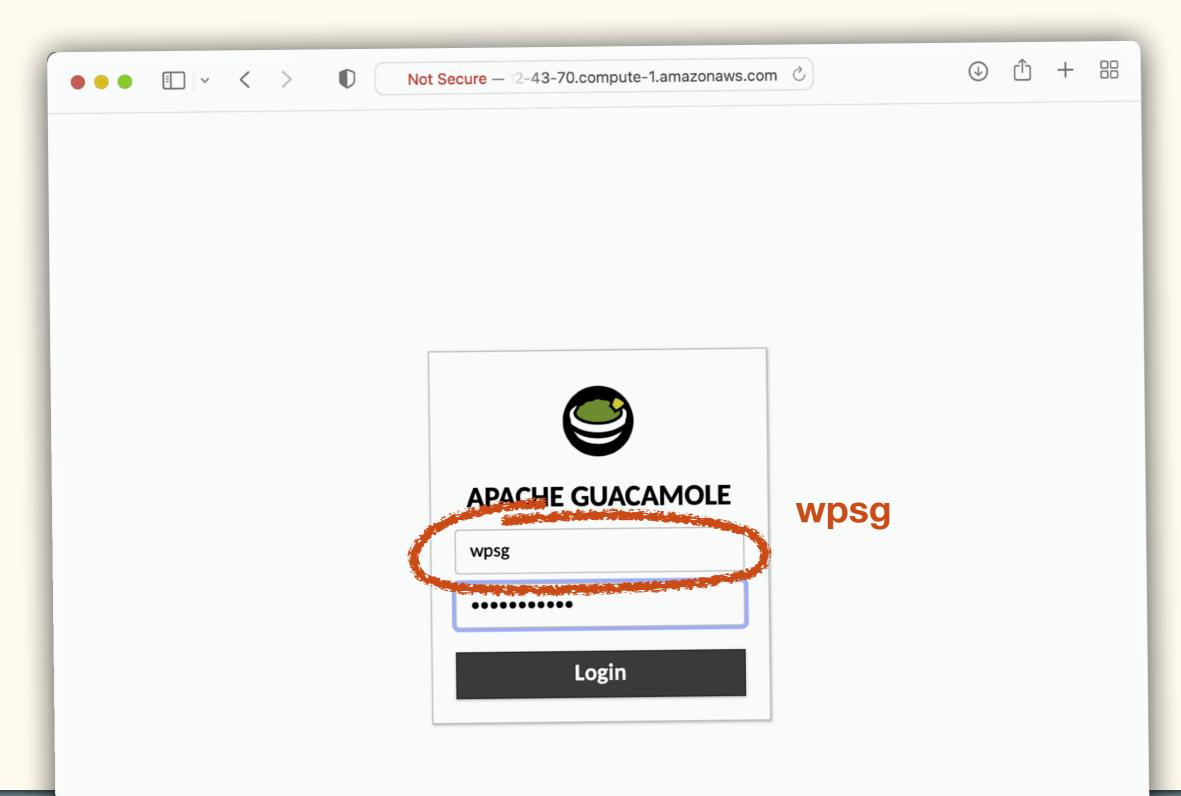
wpsg@ec2-44-202-43-70.compute-1.amazonaws.com's password:
```

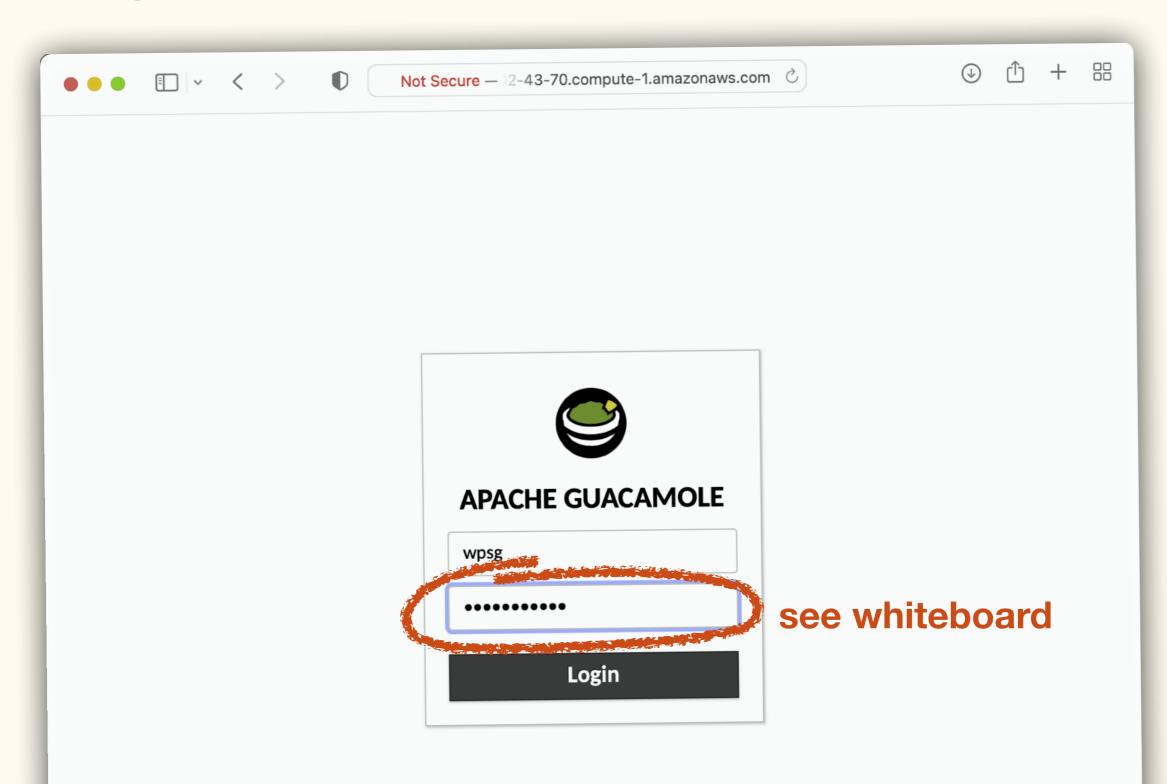
```
Workshop on Population & Speciation Genomics 2022 ##
          🎌 💆 Summer Edition 🍹 🤽 🎌
                                         ##
##
               Cesky Krumlov
                                         ##
##
            @evomics #evomics2022
##
Welcome to Ubuntu 20.04.4 LTS (5.13.0-1025-aws).
 System information as of Sun Jun 5 11:52:24 CEST 2022
                                              223
                           Processes:
 System load: 0.11
            30.2% of 484.64GB Users logged in:
 Usage of /:
                           IPv4 address for docker0: 172.17.0.1
 Memory usage: 25%
                           IPv4 address for ens5: 172.31.83.45
            0%
 Swap usage:
 * Ubuntu Pro delivers the most comprehensive open source security and
  compliance features.
  https://ubuntu.com/aws/pro
Last login: Sun Jun 5 11:28:17 2022 from 141.5.8.11
(base) wpsg@ip-172-31-83-45:[~]$ ■
```

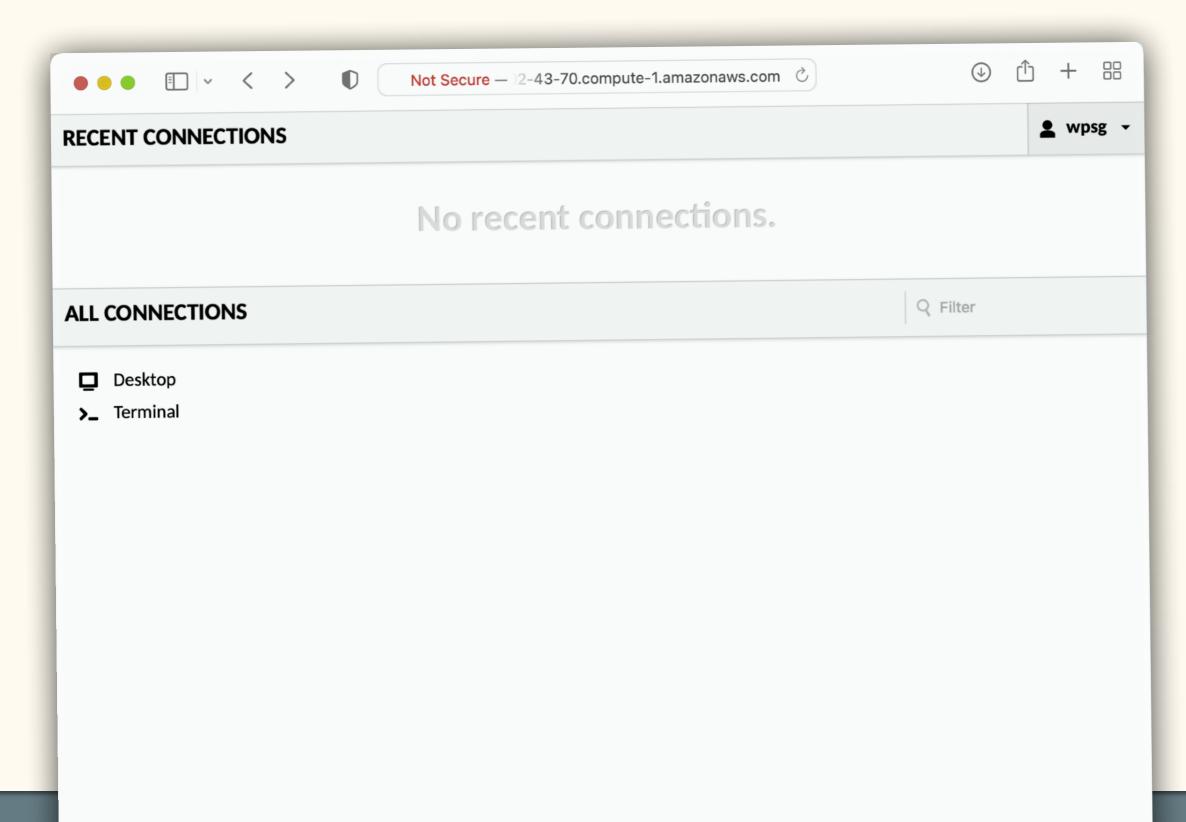
Not Secure — )2-43-70.compute-1.amazonaws.com	<b>(</b>	Û	+	00
APACHE GUACAMOLE				
wpsg				
••••••				
Login				

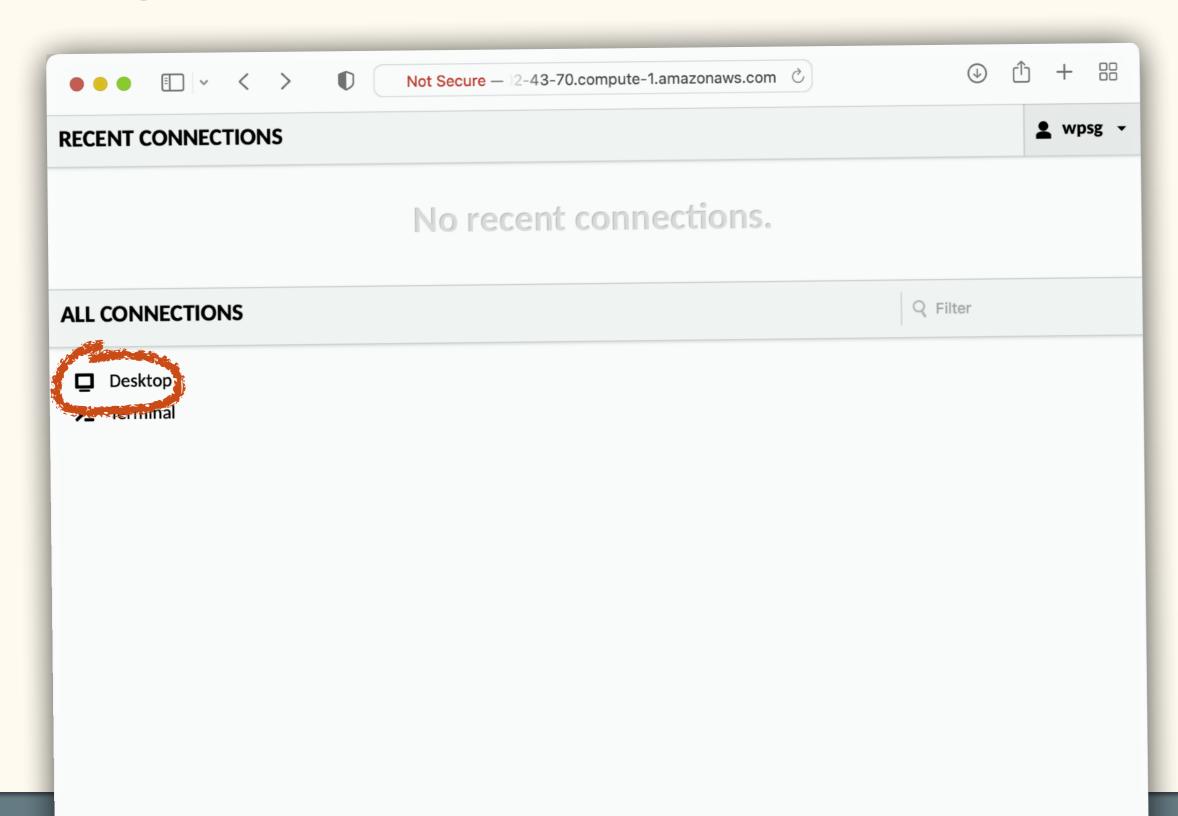
...amazonaws.com:8080/guacamole



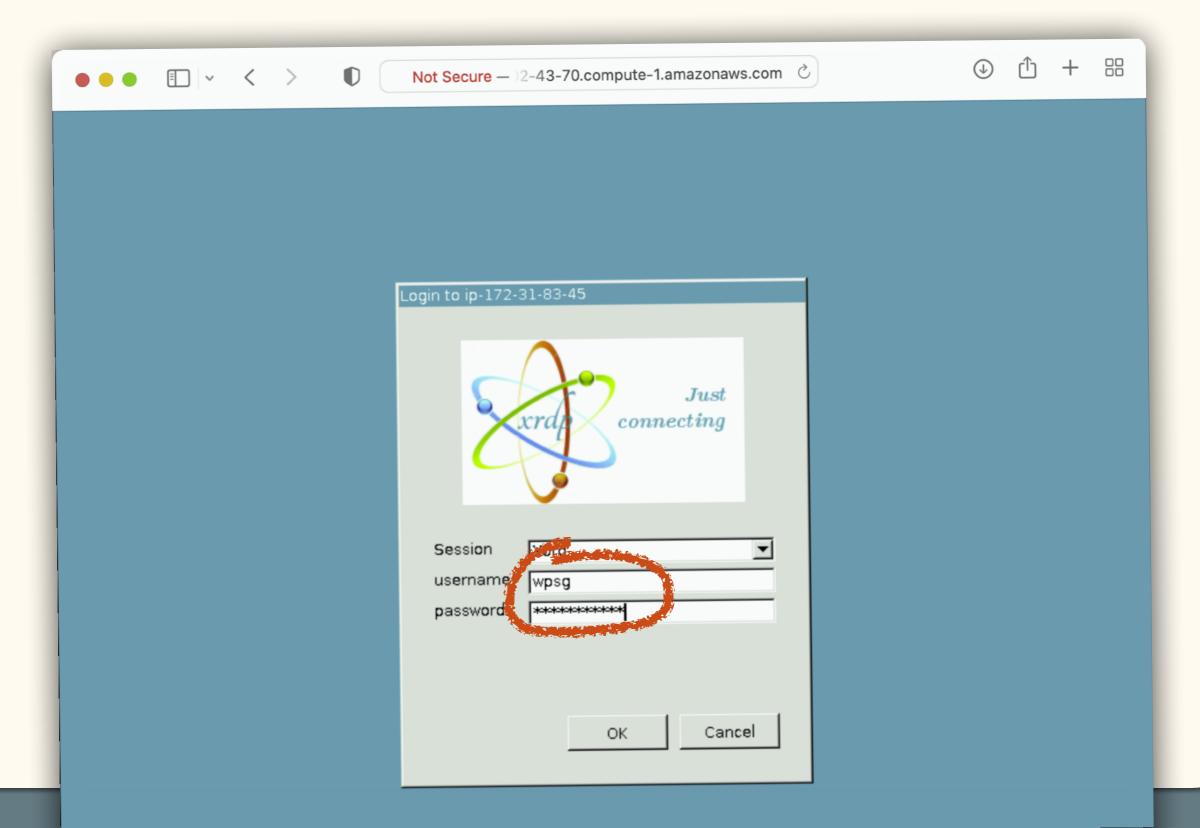


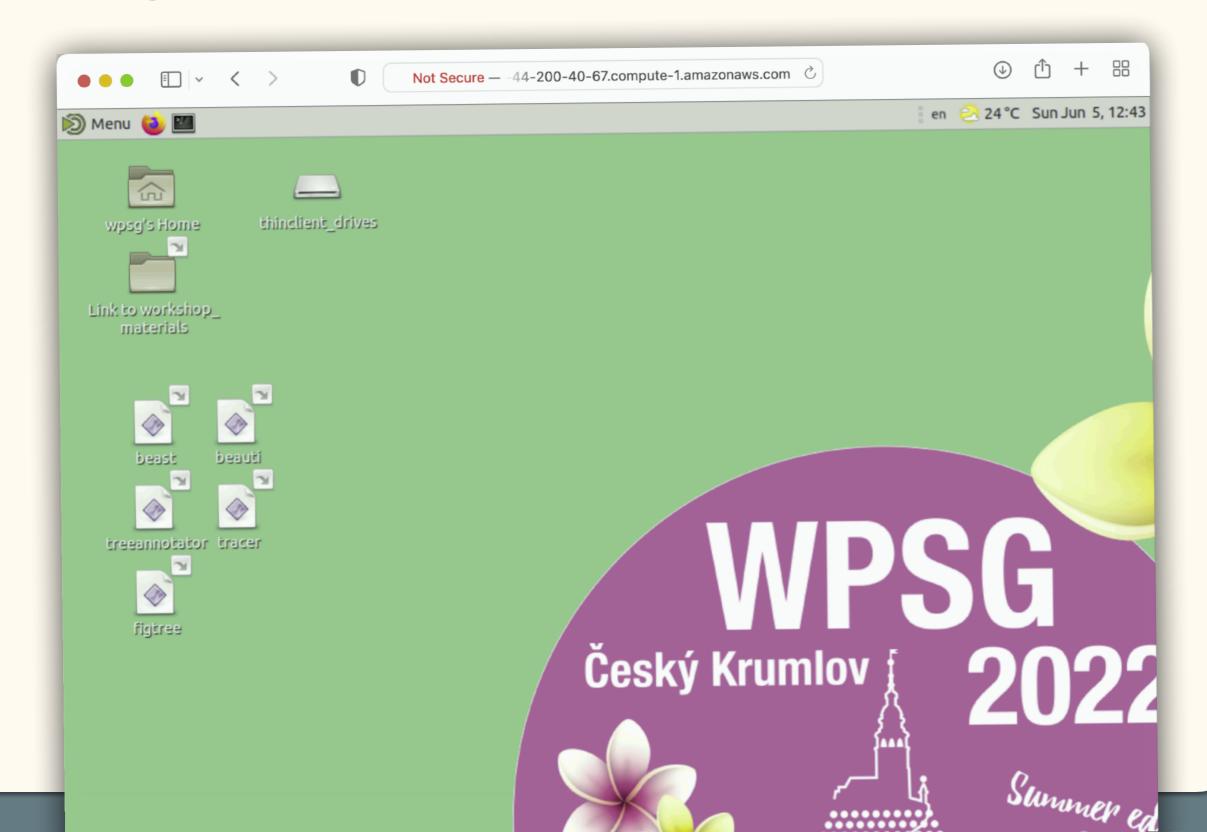


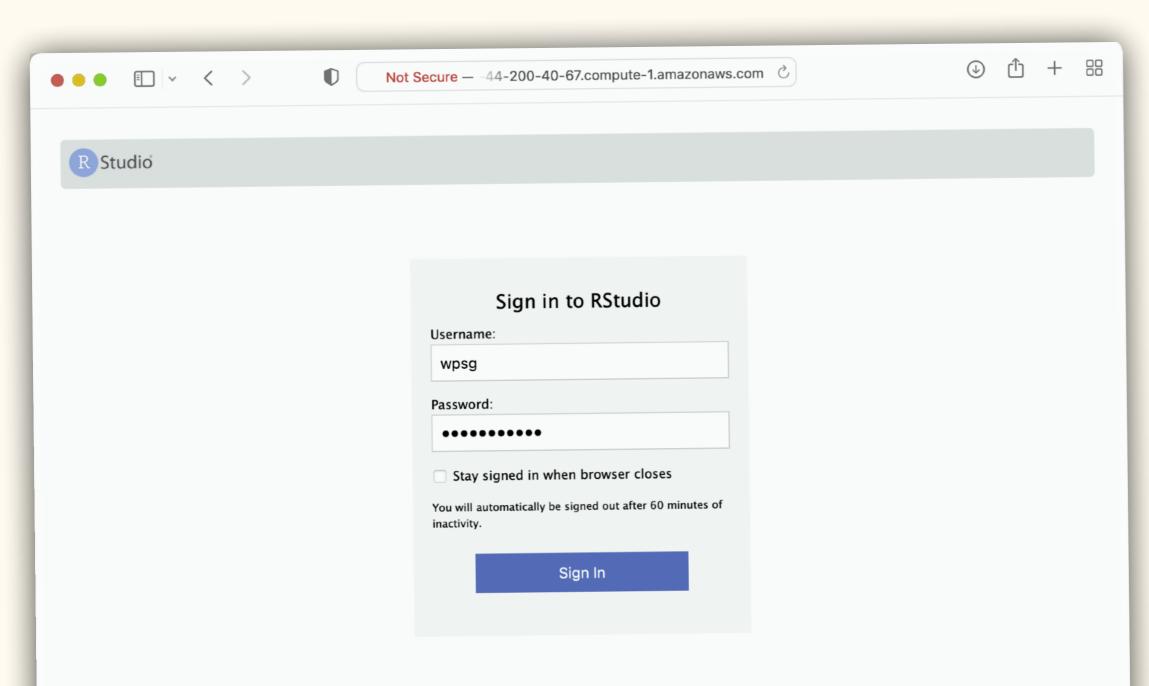




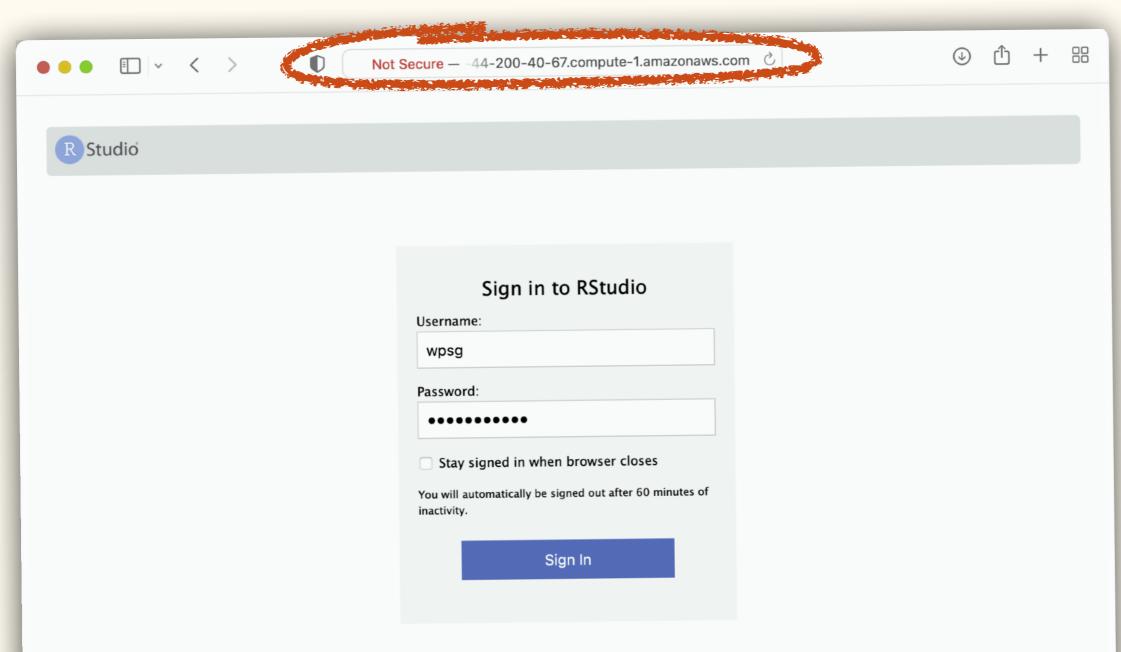
Not Secure — 12-43-70.compute-1.amazonaws.com さ	⊕ ⊕ + ==
Login to ip-172-31-83-45	
yrap connecting	
Session Xorg  username wpsg	
password ************************************	
OK Cancel	



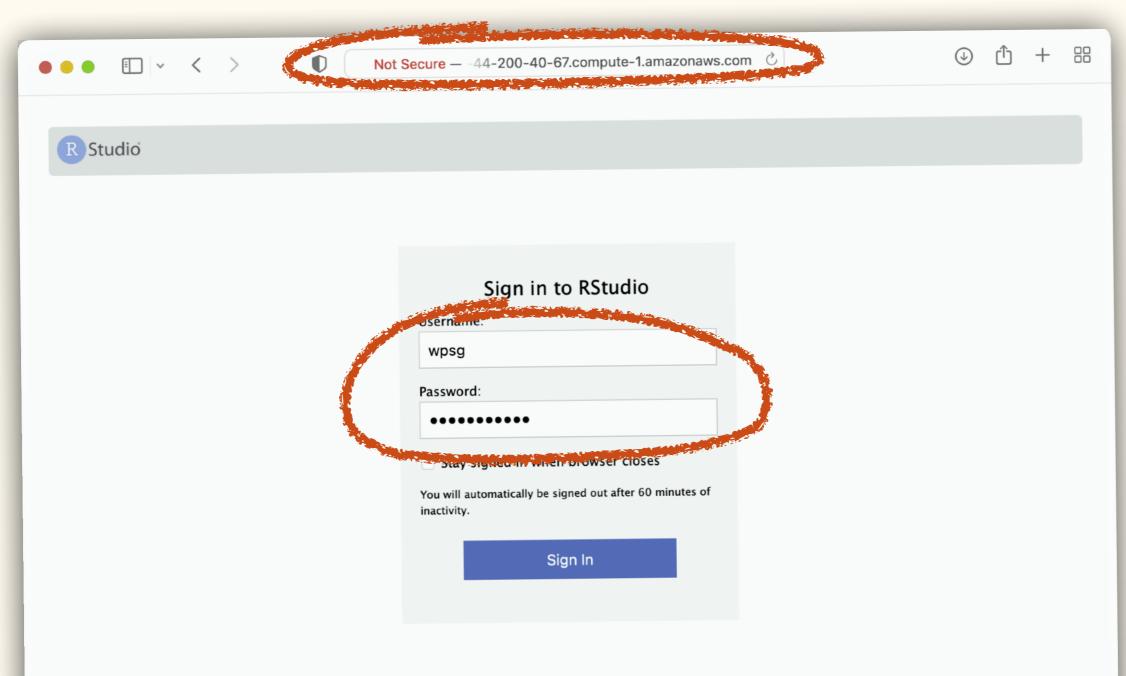


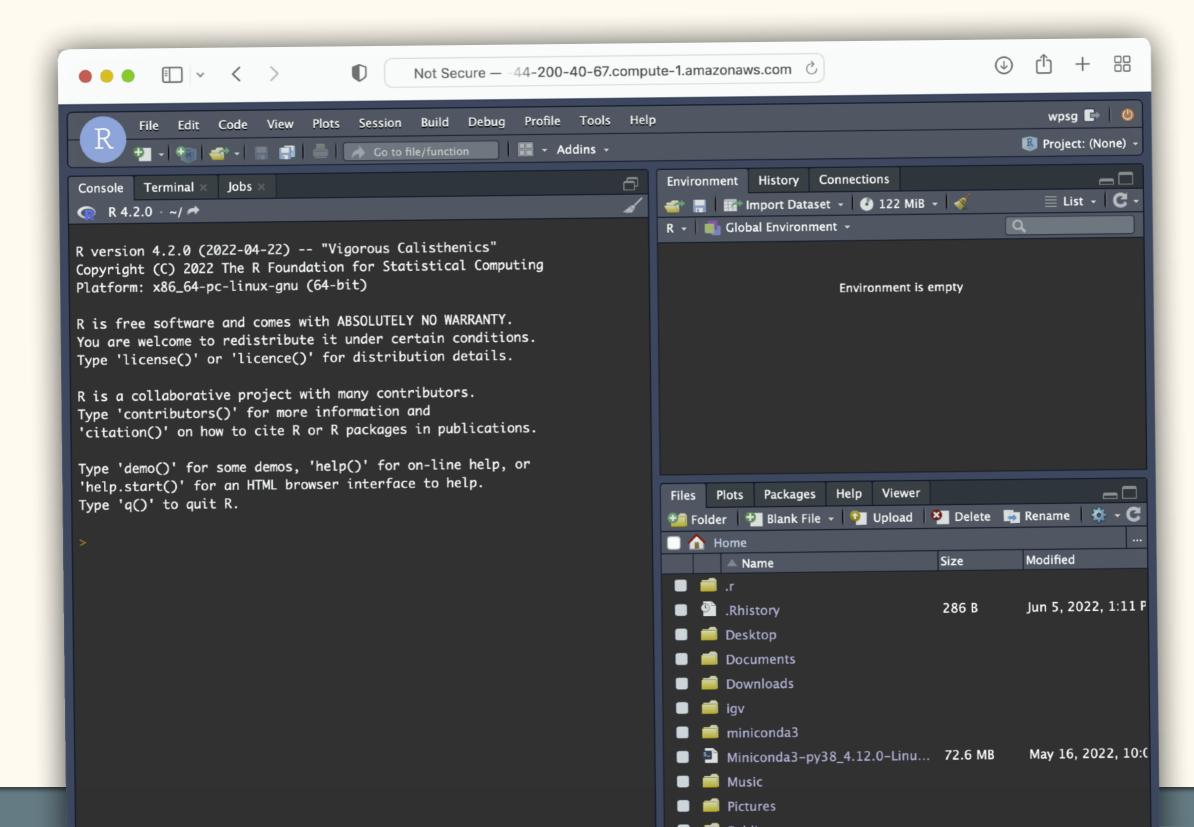


#### ...amazonaws.com:8787



#### ...amazonaws.com:8787





# 4. Jupyter Notebooks

# 4. Jupyter Notebooks

```
m_matschiner — -zsh — 80×24
Last login: Sun Jun 5 15:42:26 on ttys006
10 22-06-05 | 15:42 | ~
% ssh wpsg@ec2-100-27-22-84.compute-1.amazonaws.com
```

## 4. Jupyter Notebooks

```
m_matschiner — -zsh — 80×24
Last login: Sun Jun 5 15:42:26 on ttys006
22-60-05 15:42
% ssh wpsg@ec2-100-27-22-84.compute-1.amazonaws.com
```

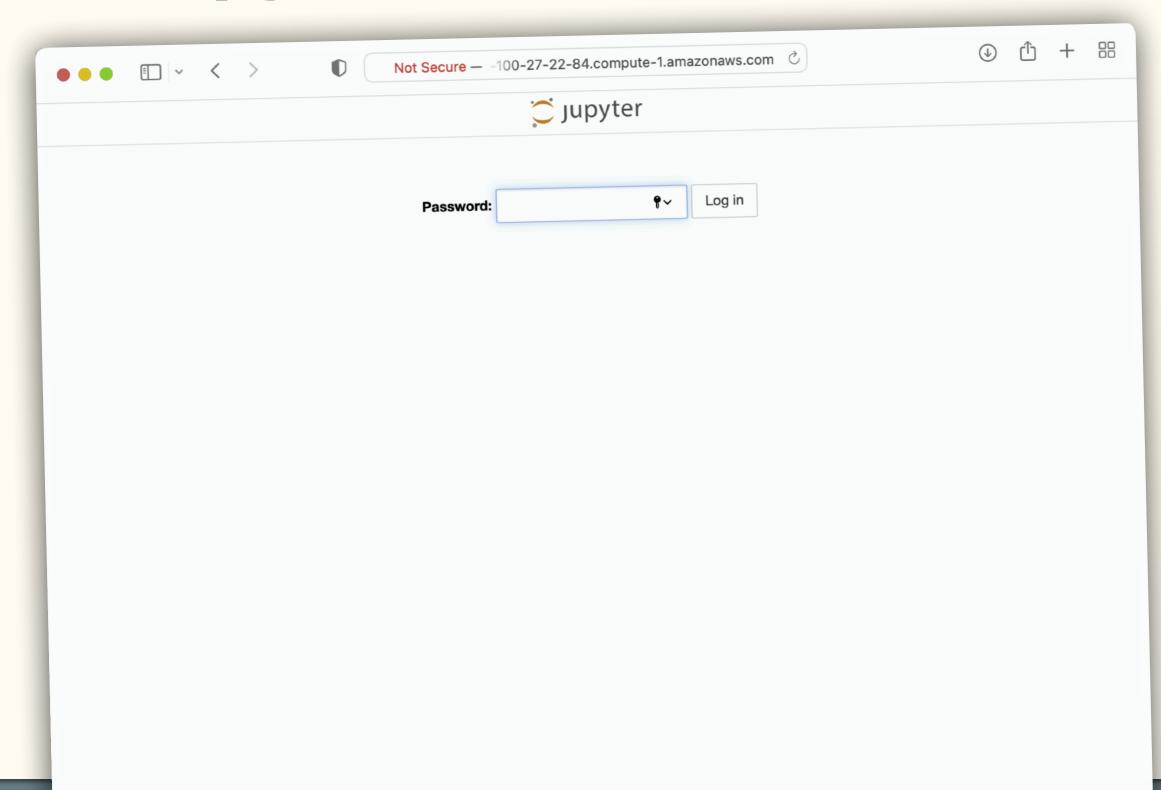
```
m_matschiner — ssh wpsg@ec2-100-27-22-84.compute-1.amazonaws.c...
Last login: Sun Jun 5 15:42:26 on ttys006
22-06-05 | 15:42 | ~
[% ssh wpsg@ec2-100-27-22-84.compute-1.amazonaws.com
wpsg@ec2-100-27-22-84.compute-1.amazonaws.com's password:
```

```
m_matschiner — ssh wpsg@ec2-100-27-22-84.compute-1.amazonaws.c...
Last login: Sun Jun 5 15:42:26 on ttys006
10 22-06-05 | 15:42 | ~
[% ssh wpsg@ec2-100-27-22-84.compute-1.amazonaws.com
wpsg@ec2-100-27-22-84.compute-1.amazonaws.cog's password:
```

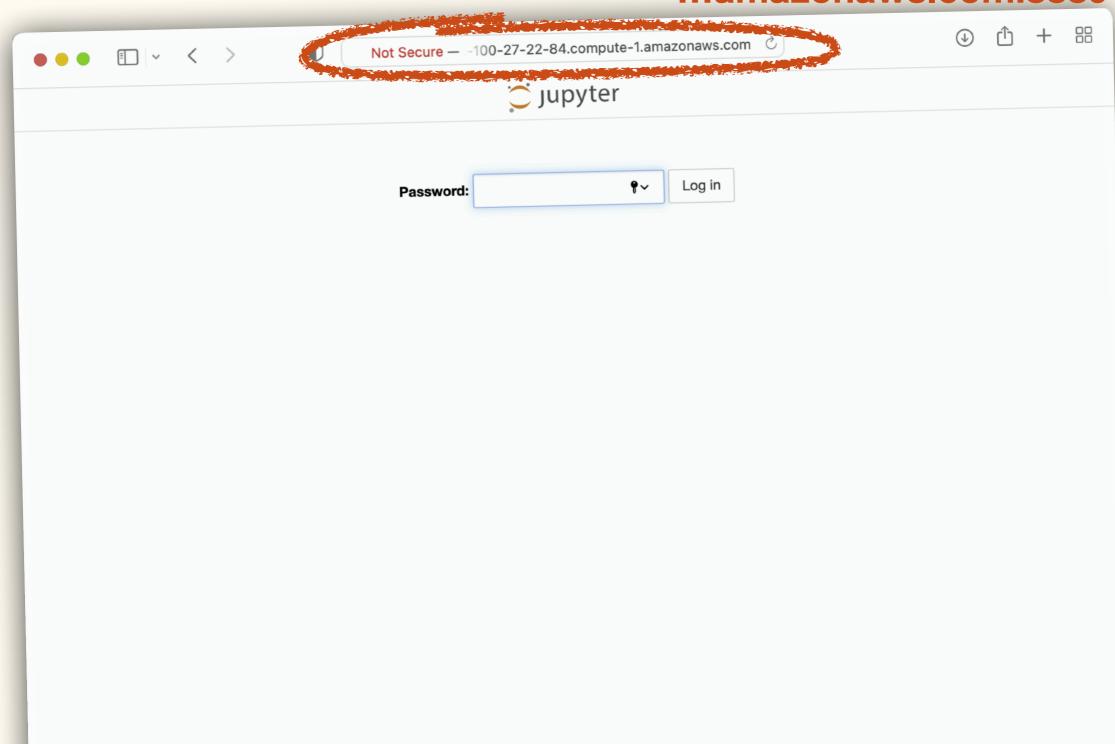
```
m_matschiner — wpsg@ip-172-31-86-137: ~ — ssh wpsg@ec2-100-27-2...
Workshop on Population & Speciation Genomics 2022
            🏋 🧸 Ϣ Summer Edition 💆 🚣 🏋
                                              ##
##
                 Cesky Krumlov
##
             @evomics #evomics2022
##
Welcome to Ubuntu 20.04.4 LTS (5.13.0-1025-aws).
 System information as of Sun Jun 5 15:43:27 CEST 2022
                                                    162
                              Processes:
 System load: 0.13
 Usage of /: 30.2% of 484.64GB Users logged in:
                              IPv4 address for docker0: 172.17.0.1
 Memory usage: 18%
                              IPv4 address for ens5: 172.31.86.137
 Swap usage:
            0%
 * Ubuntu Pro delivers the most comprehensive open source security and
   compliance features.
   https://ubuntu.com/aws/pro
Last login: Sun Jun 5 15:23:42 2022 from 90.178.205.213
(base) wpsg@ip-172-31-86-137:[~]$ jupyter notebook --no-browser --port=8889
```

```
m_matschiner — wpsg@ip-172-31-86-137: ~ — ssh wpsg@ec2-100-27-2...
Workshop on Population & Speciation Genomics 2022
            🏋 🧵 Summer Edition 💆 🚣 🎌
                                              ##
##
                 Cesky Krumlov
##
             @evomics #evomics2022
##
Welcome to Ubuntu 20.04.4 LTS (5.13.0-1025-aws).
 System information as of Sun Jun 5 15:43:27 CEST 2022
                                                    162
                              Processes:
  System load: 0.13
 Usage of /: 30.2% of 484.64GB Users logged in:
                              IPv4 address for docker0: 172.17.0.1
 Memory usage: 18%
                              IPv4 address for ens5:
                                                    172.31.86.137
  Swap usage:
             0%
 * Ubuntu Pro delivers the most comprehensive open source security and
   compliance features.
   https://ubuntu.com/aws/pro
Last login: Sun Jun 5 15:23:42 2022 from 90:175:203:213
(base) wpsg@ip-172-31-86-137:[√¶$ jupyter notebook --no-browser --port=8889
```

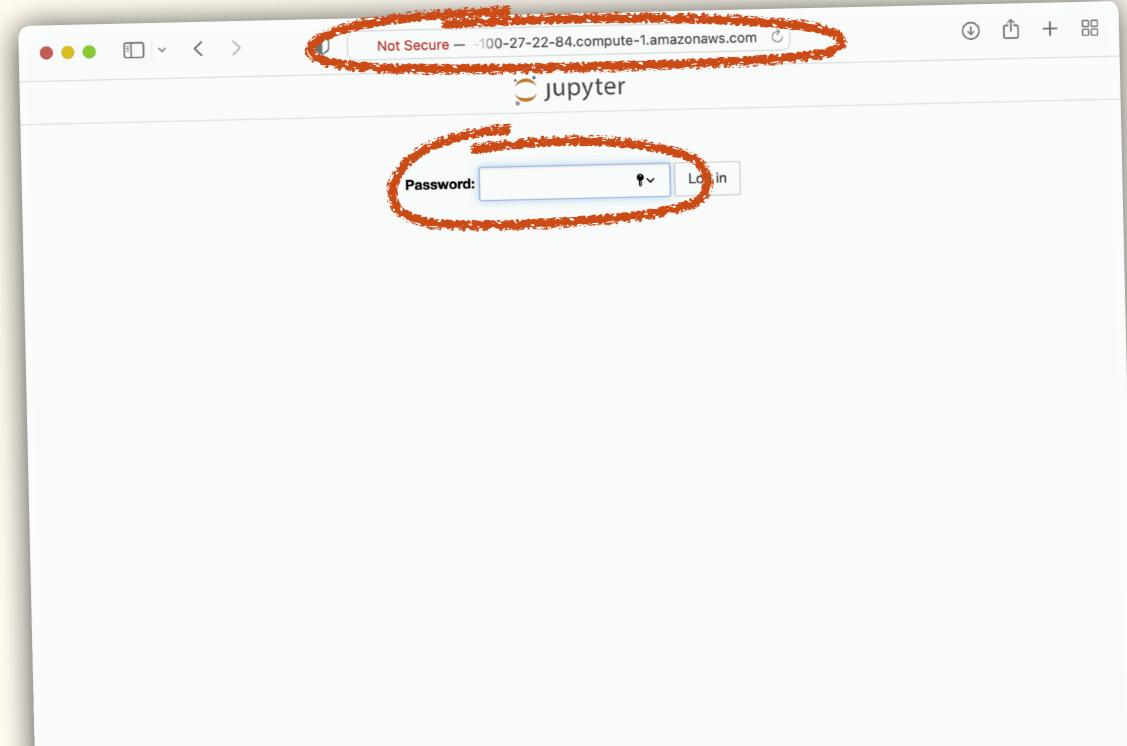
```
m_matschiner — wpsg@ip-172-31-86-137: ~ — ssh wpsg@ec2-100-27-2...
Welcome to Ubuntu 20.04.4 LTS (5.13.0-1025-aws).
  System information as of Sun Jun 5 15:43:27 CEST 2022
                                                             162
                                   Processes:
  System load: 0.13
              30.2% of 484.64GB Users logged in:
  Usage of /:
                                   IPv4 address for docker0: 172.17.0.1
  Memory usage: 18%
                                   IPv4 address for ens5: 172.31.86.137
               0%
  Swap usage:
 * Ubuntu Pro delivers the most comprehensive open source security and
   compliance features.
   https://ubuntu.com/aws/pro
Last login: Sun Jun 5 15:23:42 2022 from 90.178.205.213
[(base) wpsg@ip-172-31-86-137:[~]$ jupyter notebook --no-browser --port=8889
[I 15:43:50.408 NotebookApp] Serving notebooks from local directory: /home/wpsg
[I 15:43:50.408 NotebookApp] The Jupyter Notebook is running at:
[I 15:43:50.408 NotebookApp] http://ip-172-31-86-137:8889/
[I 15:43:50.408 NotebookApp] Use Control-C to stop this server and shut down all
 kernels (twice to skip confirmation).
```

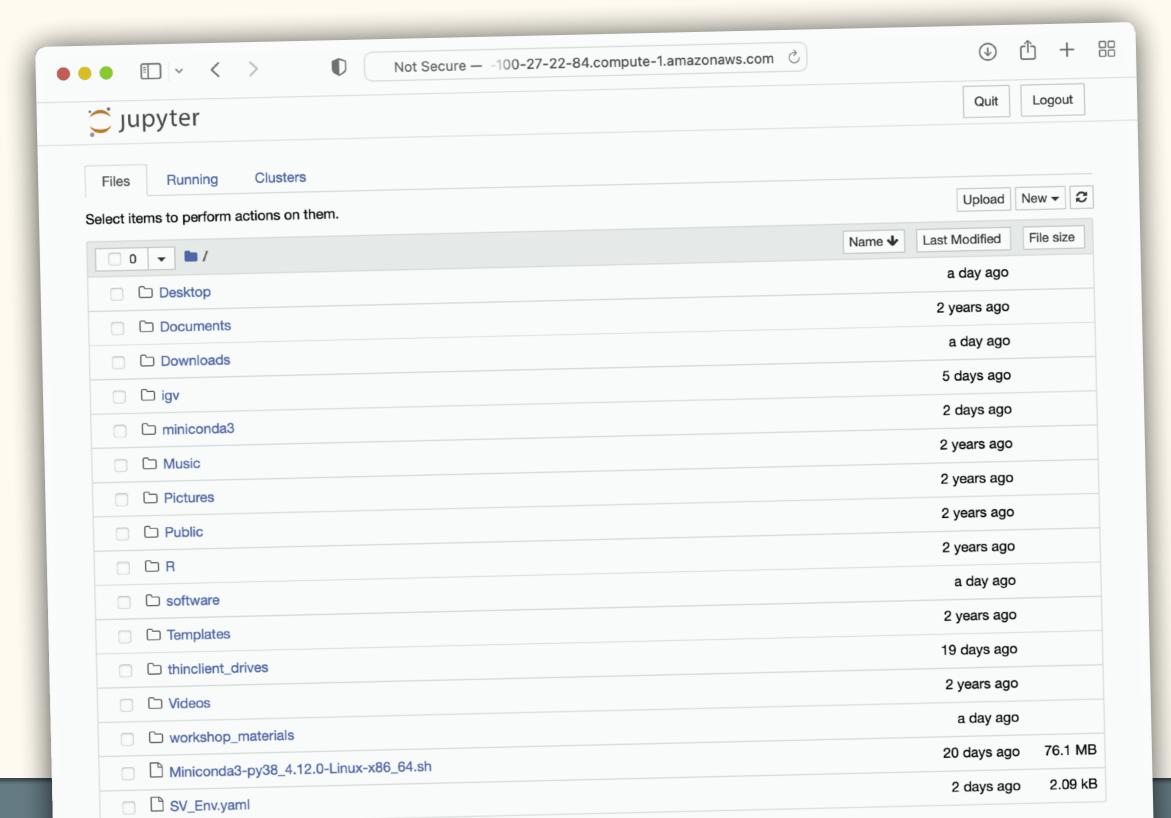


...amazonaws.com:8889



...amazonaws.com:8889





# Activity

### **EVOLUTION AND GENOMICS**

Intensive and immersive training opportunities

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#### **LINKS**

- Amazon instances IP addresses
- Map of important locations in Český Krumlov

### **SCHEDULE**

Week 1:5-11 June, 2022

	- AV	TIME	PRESENTER	TOPIC	LOCATION
DATE	DAY	TIME		UNIX primer (optional)	Prelate
5 Jun	Sunday	4p – 6p	Workshop Team		Hotel Zlaty Andel
		7p – 10p	Everyone	Reception dinner	-
6 Jun	Monday	9a – 10:30a	Workshop Team	Workshop introduction	Egon Schiele
		10:30a – 12p	Michael Matschiner	Likelihood and probability	Egon Schiele
		12p – 12:15p	Everyone	Group photo	Outside Prelate
		·	Workshop Team	AMI introduction	Prelate
		2p – 3:30p		Probability activity	Prelate
7 Jun		3:30p – 5p	Workshop Team		Prelate
		7p – 10p	Everyone	Participant introduction	Prelate
	Tuesday	9a – 12p	Rasmus Nielsen	Population genomics	Egon Schiele
7 Juli	desady	2n - 5n	Rasmus Nielsen and Thorfinn	ANGSD activity	Prelate

Scott Handley, Washington University, US
Milan Malinsky, University of Bern, Switzerland
Michael Matschiner, University of Oslo, Norway
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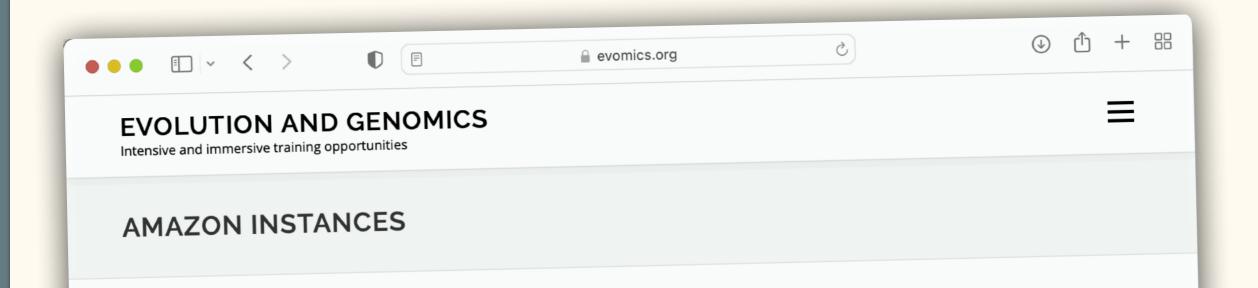
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	DAV	TIME	PRESENTER	TOPIC	LOCATION
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		2p - 3:30p	Workshop Team	AMI introduction	Prelate
		3:30p - 5p	Workshop Team	Constitution of detroity	Prelate
		7p – 10p	Everyone	Participant introduction	Prelate
	Tuesday	9a – 12p	Rasmus Nielsen	Population genomics	Egon Schiele
		2n - 5n	Rasmus Nielsen and Thorfinn	ANGSD activity	Prelate



### Connecting to your Amazon instance

Michael Matschiner, Milan Malinsky, and the Workshop Team. 6th June 2022

### Amazon Web Services and Amazon instances

For this workshop we are going to use a high performance cloud platform called Amazon Web Services (AWS). This is a flexible resource to get computational work done quickly and relatively inexpensively. We have set up individual virtual machines called "Amazon instances" for each participant. These have all the software and data you will need along with sufficient CPU, RAM, and storage resources. Your instance IP address can be found on this list and the list of IP addresses is also linked from the main workshop page (in the box with links).

The IP addresses are going to change regularly during the workshop, as we'll stop the instances overnight and resume them on the next day to cut down the cost that we need to pay to Amazon. Whenever instances are restarted, the IP addresses will change; however, the content of the instance will remain the same. So the files that you write on any given day on your instance should usually still be present on the next. We are going to announce when we stop instances overnight, and we will accept requests to leave instances running in case that you'ld like to keep working on an analysis.

In addition to stopping instances overnight, it may also occur that we need to issue completely new instances at some point. This may be the case when/if we need to install additional software or add datasets for activities. In such cases, we'll terminate old instances, meaning that the files from these instances will not be accessible anymore to you. We are going to announce if/when that happens, and we will give you time to finish analyses or download data if you request it.

Generally, however, we discourage downloading data — at least large datasets — from the Amazon instances, because we have to pay for download volume. We are going to provide a Dropbox directory at the end of the workshop, which will contain the dataset and scripts used during the Workshop, and we ask you to download this Dropbox directory (if interested) instead of copying large volumes of data from the