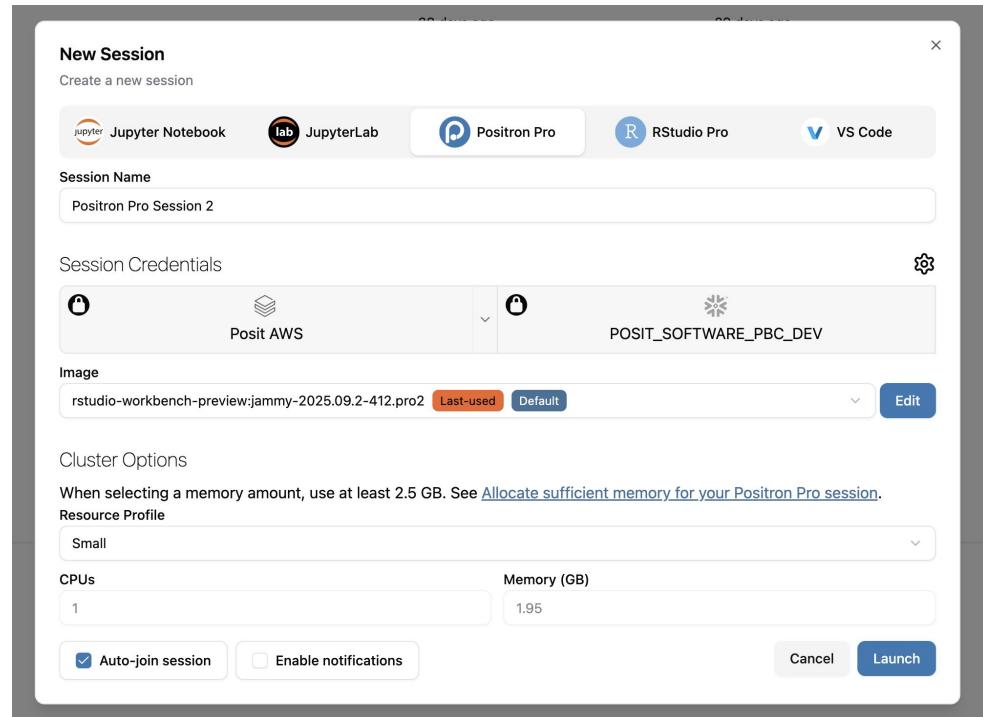


# Workbench Audited Jobs

# Workbench

Workbench is an on-premise Posit product that gives you remote access to your favorite IDE(s) including:

- RStudio
- Jupyter
- VS Code
- Positron.



# Workbench - On-premise software

The Workbench environment provides a number of benefits over local development:

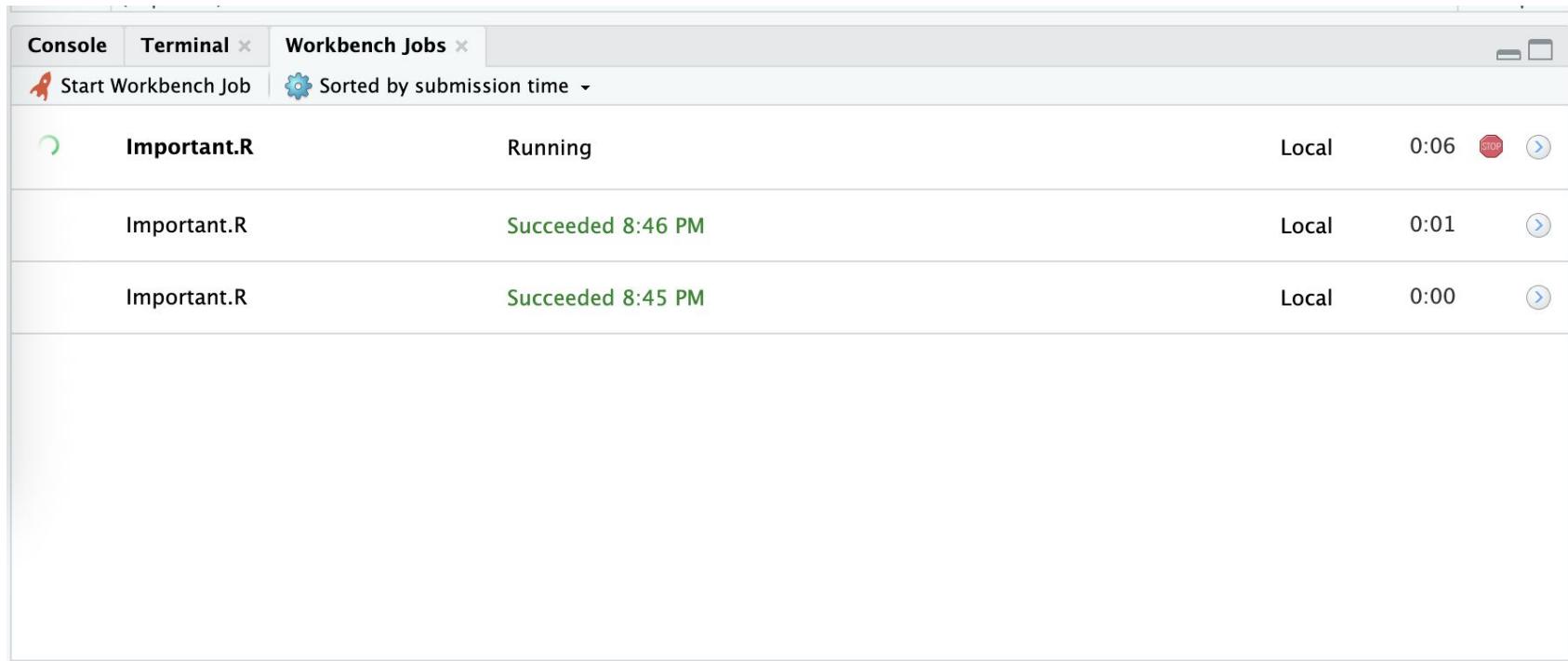
- Increased resources
- Standardized environments
- Data never leaves the server environment

# Workbench Jobs - What do they do?

Workbench jobs are asynchronous jobs that can be launched from an IDE:

- Run in the background while user does other work.
- Runs in a variety of languages: R, python, etc.
- Runs in various environments: locally, slurm, kubernetes.

# Workbench Jobs - What's running?



The screenshot shows the 'Workbench Jobs' interface in a software application. The interface has a tab bar at the top with 'Console', 'Terminal x', and 'Workbench Jobs x'. The 'Workbench Jobs' tab is active. Below the tabs, there are two buttons: 'Start Workbench Job' with a red icon and 'Sorted by submission time' with a blue gear icon. The main area displays a table of jobs:

Job Status	Job Name	Submission Status	Location	Duration	Actions
Running	Important.R		Local	0:06	 
Succeeded	Important.R	8:46 PM	Local	0:01	
Succeeded	Important.R	8:45 PM	Local	0:00	

# Workbench Jobs - What was run?

## Important.R

FINISHED

CLUSTER Local

STATUS FINISHED

EXIT CODE 0

SUBMITTED 5/28/2025, 8:53:24 PM

EXECUTABLE /bin/bash

ARGUMENTS -c cd ~ && /opt/R/4.4.3/lib/R/bin/R --no-echo --no-save --no-restore -f ~/Important.R

TAGS rstudio-r-script-job:~/Important.R pwb-audited-job:false

## OUTPUT

```
[1] "This is important."
```

# Audited Jobs - Motivation

Regulated industries usually have a concept like a **final run**.

Job Run	Final Run
Iteration	Retention
Never the Same	Reproducible
Disposable	Verifiable

# Audited Jobs - Start Audited Job



# Audited Jobs - What's running?

Console	Terminal x	Workbench Jobs x				
			 Start Workbench Job	 Sorted by submission time		
			  Important.R	Running	Local	0:28  
			Important.R	Succeeded 8:54 PM	Local	1:00 
			Important.R	Succeeded 8:46 PM	Local	0:01 
			Important.R	Succeeded 8:45 PM	Local	0:00 

# Audited Jobs - Enhancements

We build on workbench jobs by having:

- Long(er) retention policy.
- Environment capture.
- Output digital signature.

# Audited Jobs - Environment Capture

## Important.R

CLUSTER Local

STATUS FINISHED

EXIT CODE 0

SUBMITTED 5/28/2025, 8:59:17 PM

EXECUTABLE /opt/R/4.4.3/lib/R/bin/R

ARGUMENTS --no-echo --no-save --no-restore -f ~/Important.R

TAGS  ~/Important.R  pwb-audited-job:true  8d8ecc8e-c78f-4fc2-b983-80f9cdd8c794

FINISHED

[Download Audit Details](#)

## AUDIT DETAILS

	Digital Signature	System	R Environment
VERSION	4.4.3		
BLAS	/usr/lib/aarch64-linux-gnu/openblas-pthread/libblas.so.3		
LAPACK	/usr/lib/aarch64-linux-gnu/openblas-pthread/libopenblas-p0.3.20.so		
LIBRARIES	/home/seansinnott/R/aarch64-unknown-linux-gnu-library/4.4 /opt/R/4.4.3/lib/R/library		
PACKAGES	KernSmooth=2.23-26 MASS=7.3-64 Matrix=1.2-12 base=4.4.3 boot=1.3-31 class=7.3-23 cluster=2.1.8 codetools=0.2-20		

## OUTPUT

```
[1] "This is important."
```

# Audited Jobs - Digital signature.

## Important.R

CLUSTER Local

FINISHED

STATUS FINISHED

Download Audit Details

EXIT CODE 0

SUBMITTED 5/28/2025, 8:59:17 PM

EXECUTABLE /opt/R/4.4.3/lib/R/bin/R

ARGUMENTS --no-echo --no-save --no-restore -f ~/Important.R

TAGS

## AUDIT DETAILS

	Digital Signature	System	R Environment
VERIFIED	Yes		

ALGORITHM RSA-SHA256

PUBLIC KEY ID s/Tpy0UGmwCg76kOeRuPGR3jQQ32HQmfEwZVqmQrQs=

SIGNATURE Mpk2UuNQ99nDMsvd9MLeRwWRlIIifPSj7Uzw5vs+U31+GegnaBMkkPQmGnqvGxZ/WR/kvBiYg4QLFPBfrnXy/737dsfH4AFSz/aP93pTende0H5rAN3DQf94JQvMA+cncr8nFCWq2xbz+4AExmNPDc/8LNzgGn/7JknkbQeMu3unLRA5GqpeduqNelLMGHHHfhp81+iyDngx8Lcf+FZ6i5RUp+hPSfOm5GBVCPpccDfQ2yfVbqxFJ9UmC/EMvrs6czesNhf7mmfg1CXnlj5kVrnE6hJ7uX9U9juzXqMog7BkjkyQDebi+V76Tqvz3/T4TfFVksxk4fjSOXBy0csSOTQvnpb0aHfIKXs+C377FpdkYkMT1M6BNXhzQpx+QhiJNcbtdMcAyMSjnbNIR6x9YtUdooEXFpbkXyeK5CPY0I766gJN92B8ej2ghUZk785pu0L+j35uPacz/pN8AKGUoJC6LRdnfukKC63fFfISITntWnXOke2ke/21wgTeyFbe3BgeDMtgCoVNAlyOyErIg9OpvsLitp1SHTjfSEU252PX2q+6tK8LOuAjlJ9FVdegDY+z05dPXJ2HU6Gxt6m0au4ZlbOx7d+vw5Ri+UhctEHRXv3C5/gEgYK5ogdW/Q/QmRqtUoS+puWn29UH4vQ=

## OUTPUT

```
[1] "This is important."
```

# Audited Jobs - Bespoke Metadata

## AUDIT DETAILS

	Digital Signature	System	R Environment	User Defined Data
ASSAY SUMMARY	Assay Data Summary for Compound XDR-47892 Compound Information Name: XDR-47892 (Azafenoxapril) Formula: C23H27N3O5S Class: Small molecule kinase inhibitor			