Command: a new tool for building multi-agent architectures in LangGraph

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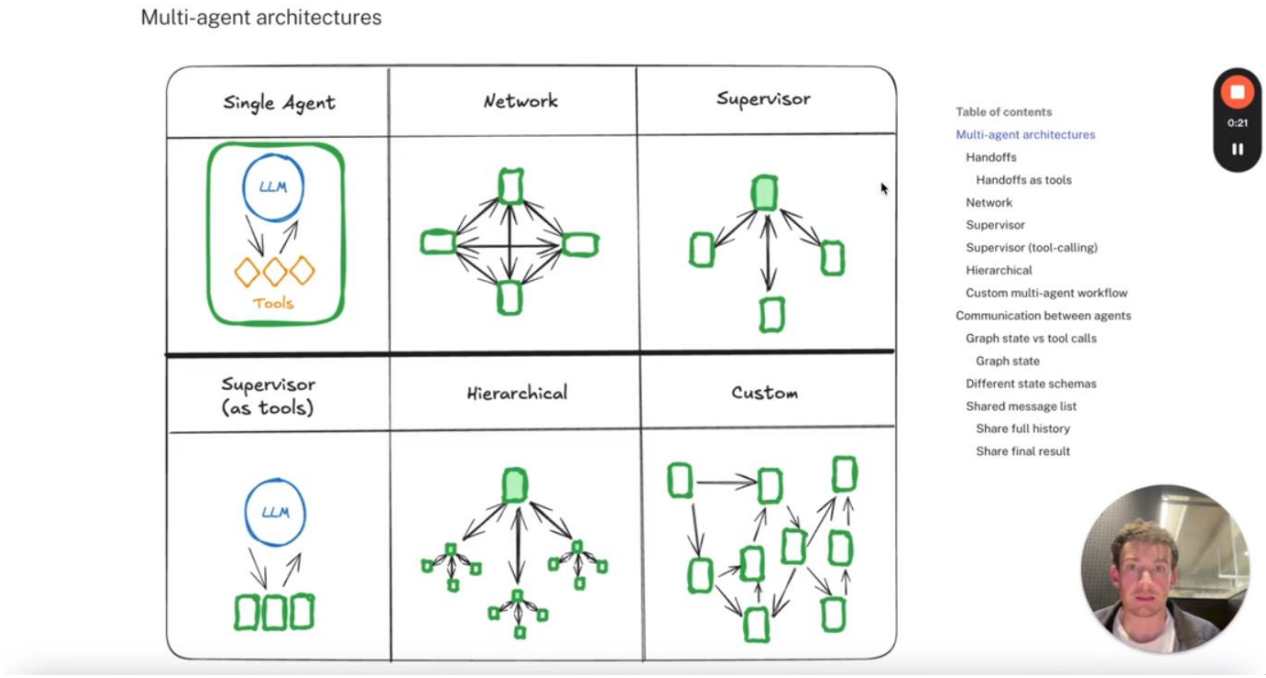
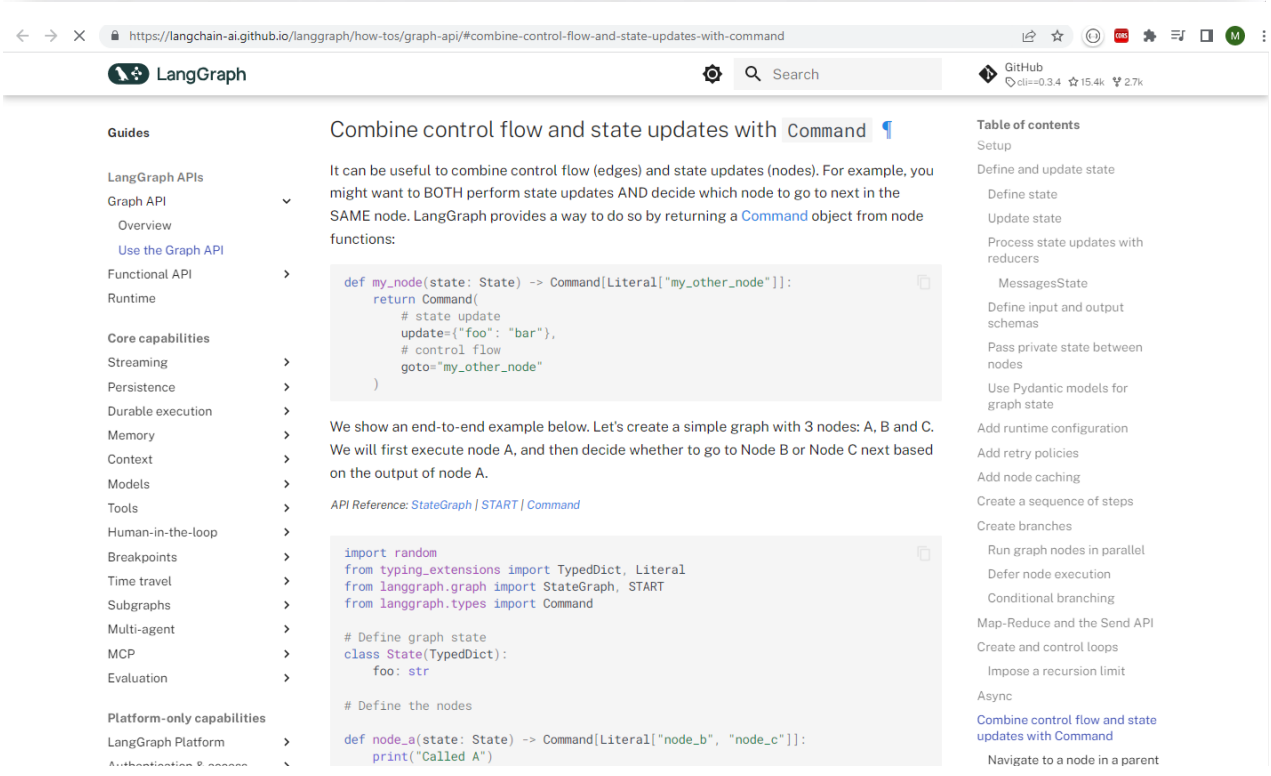
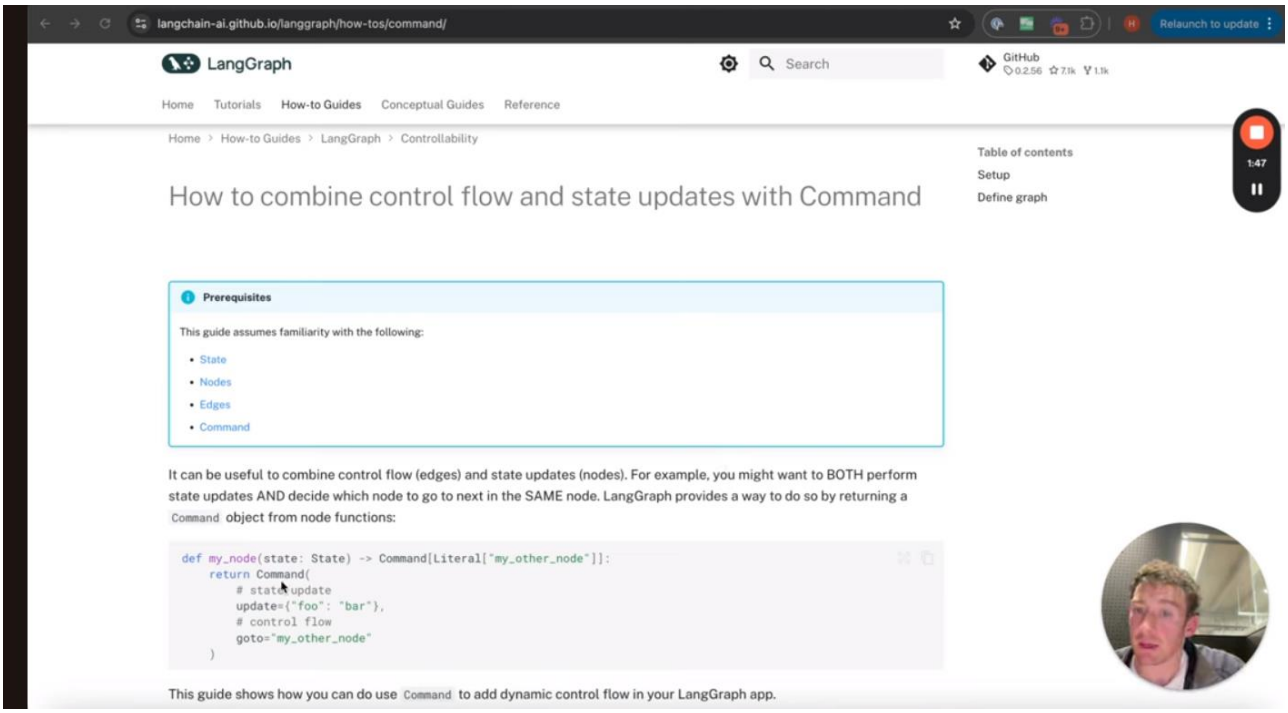
Agent and multi-agent systems are all about how the different components of the the system communicate with each other. We spend a lot of time thinking about the best infrastructure and developer experience for facilitating this type of communication. Today, we're excited to announce Command: a new tool in langgraph to more easily facilitate multi-actor (or multi-agent) communication.

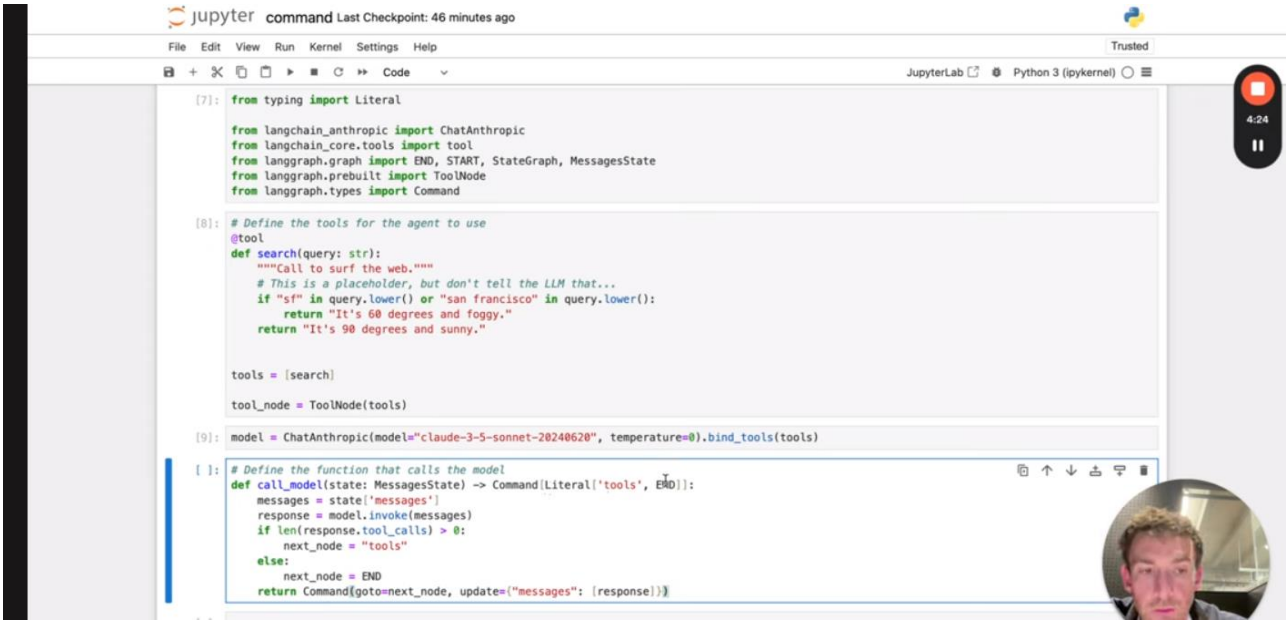
Python Docs: https://langchain-ai.github.io/langgr...
JS Docs: https://langchain-ai.github.io/langgr...





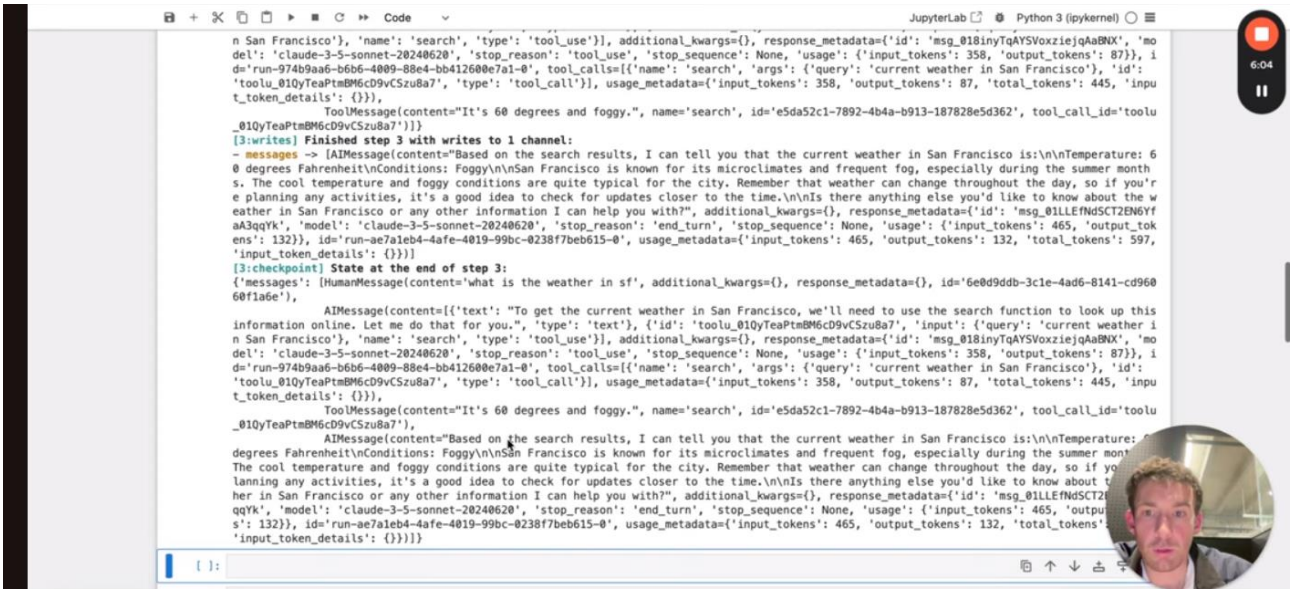


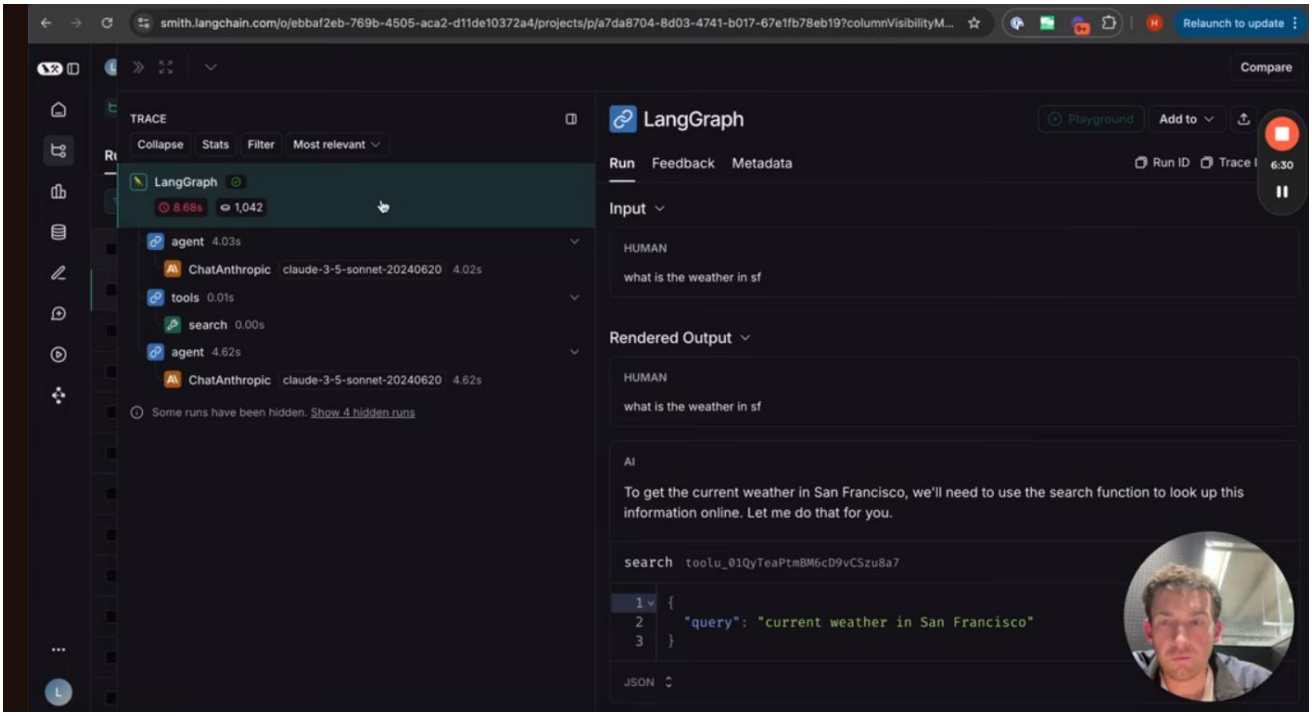
Let us build an agent that has no edges but use the Command to route between nodes and the END, we will use a mocked search tool to search the web.

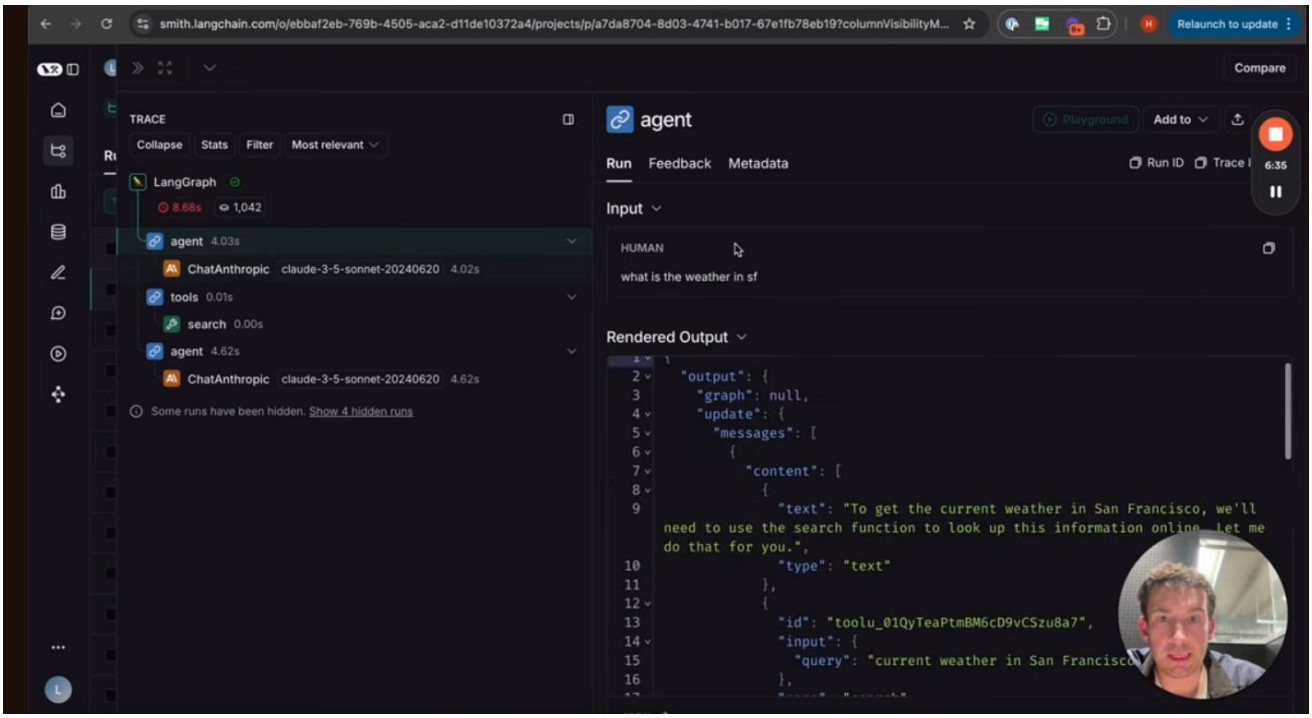


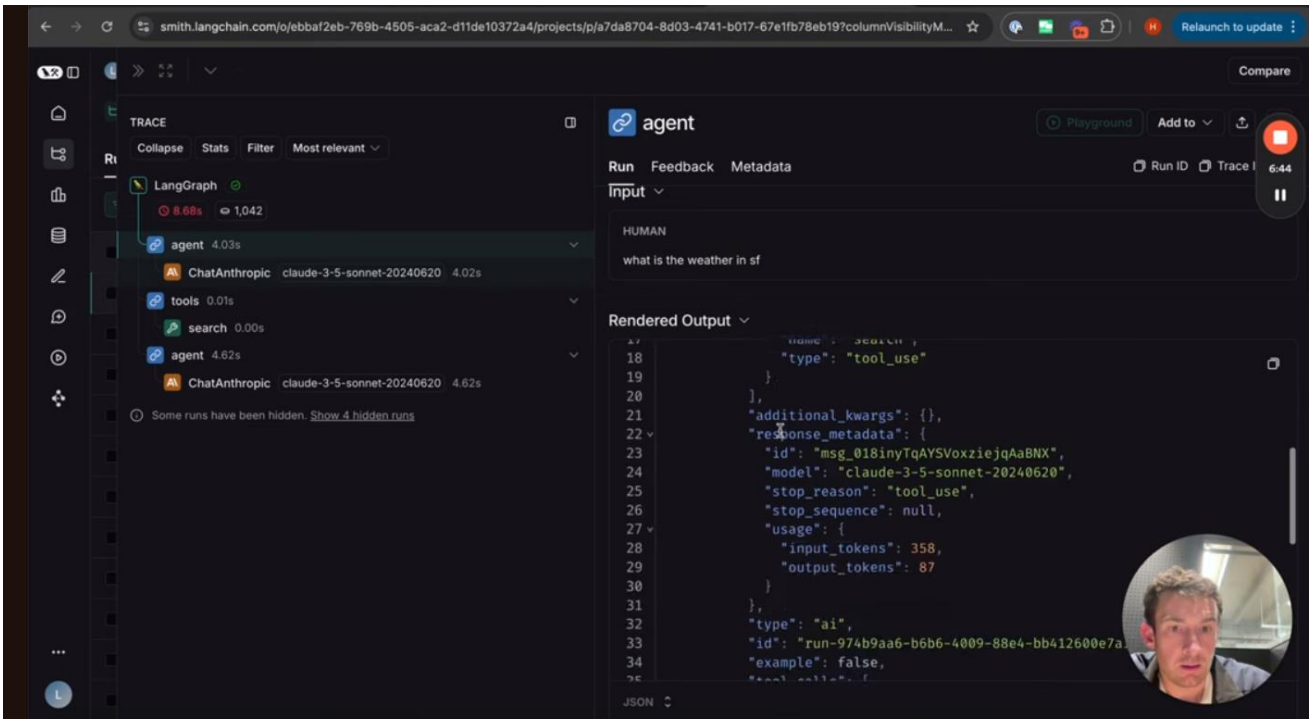
Code
JupyterLab
Python 3 (ipykernel)
6:00
[0:writes] Finished step 0 with writes to 1 channel:
- messages -> [{'content': 'what is the weather in sf', 'role': 'user'}]
[0:checkpoint] State at the end of step 0:
[1:tasks] Starting 1 task for step 1:
[1:writes] Finished step 1 with writes to 1 channel:
[1:checkpoint] State at the end of step 1:
[2:tasks] Starting 1 task for step 2:
[2:writes] Finished step 2 with writes to 1 channel:
[2:checkpoint] State at the end of step 2:

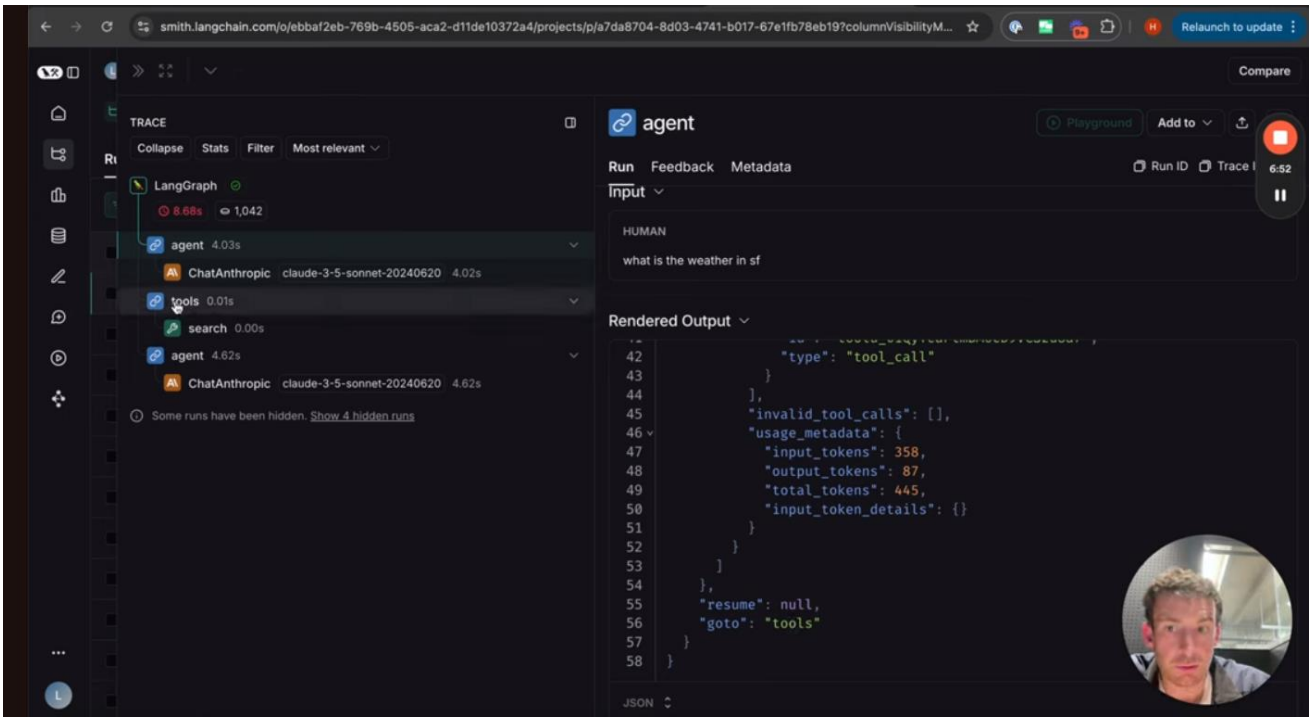
Code
JupyterLab
Python 3 (ipykernel)
6:02
[2:writes] Finished step 2 with writes to 1 channel:
[2:checkpoint] State at the end of step 2:
[3:tasks] Starting 1 task for step 3:
[3:writes] Finished step 3 with writes to 1 channel:
[3:checkpoint] State at the end of step 3:

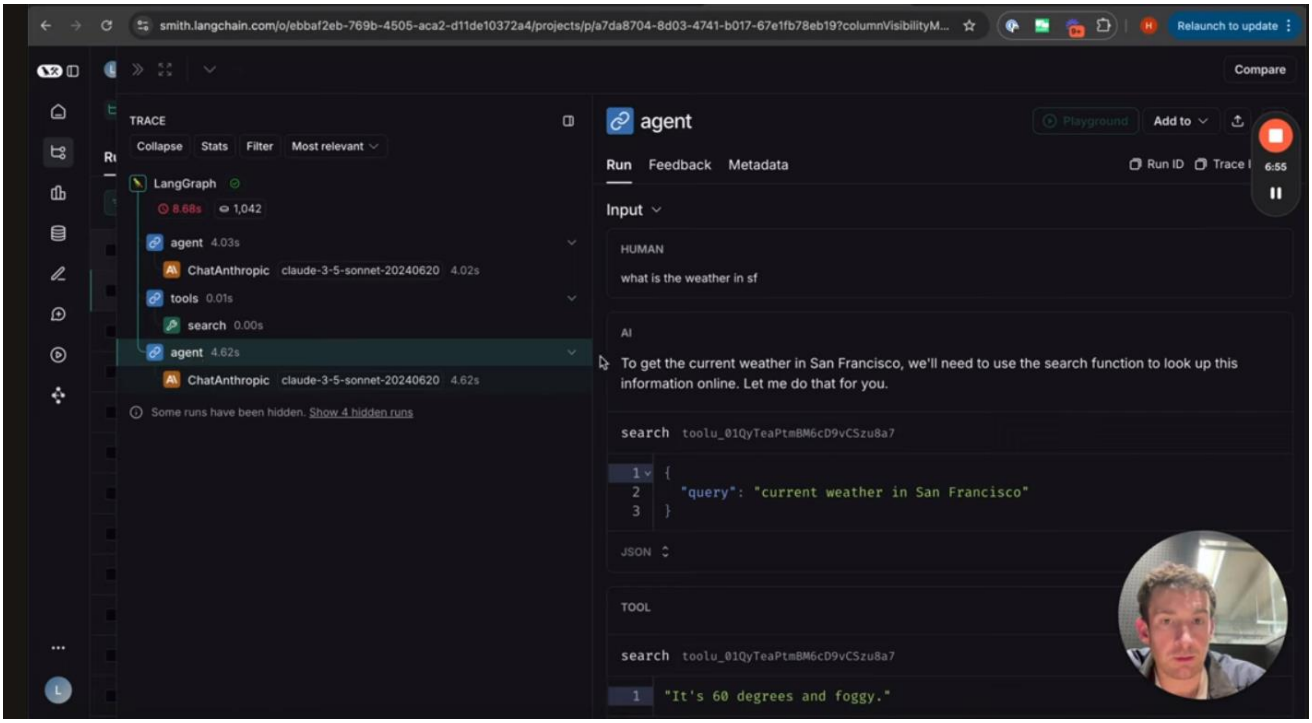

Code
JupyterLab
Python 3 (ipykernel)
6:04
[3:writes] Finished step 3 with writes to 1 channel:
[3:checkpoint] State at the end of step 3:
[ ]:

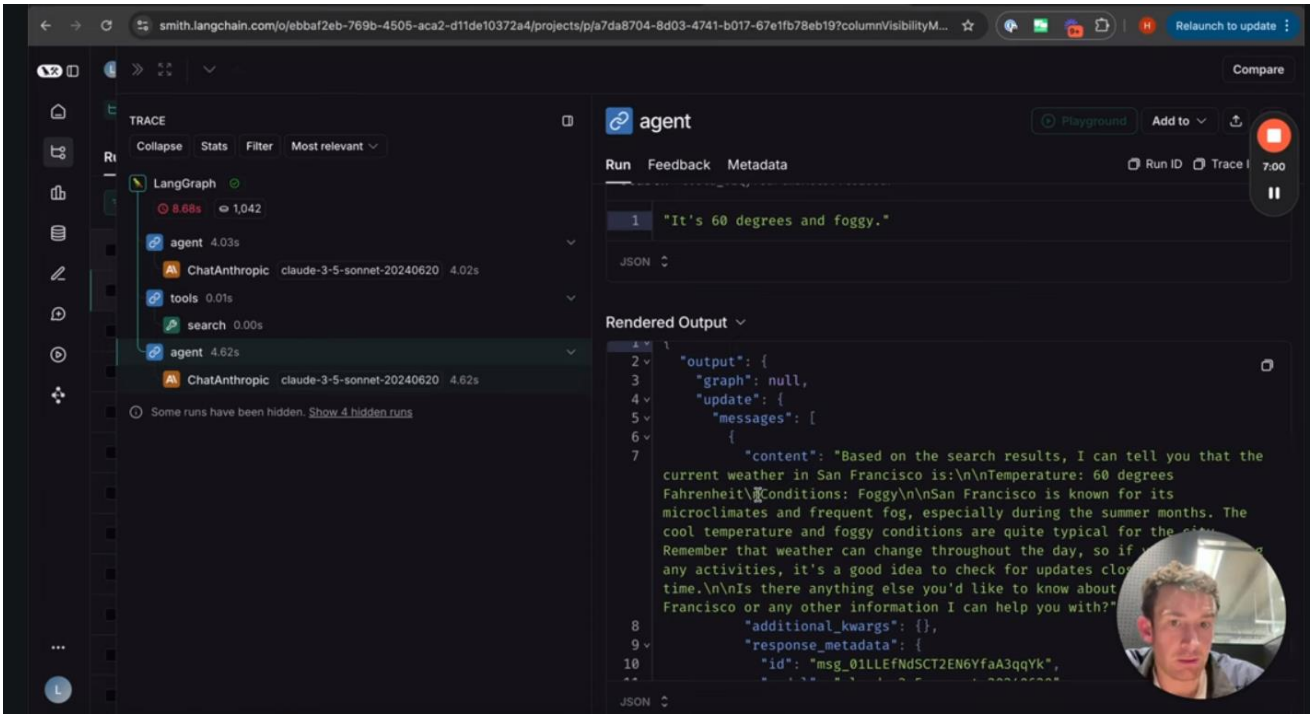

smith.langchain.com/o/ebbaf2eb-769b-4505-aca2-d11de10372a4/projects/p/a7da8704-8d03-4741-b017-67e1fb78eb19?columnVisibilityM...
Relaunch to update
Compare
TRACE
Collapse
Stats
Filter
Most relevant
LangGraph
8.68s
1,042
agent 4.03s
ChatAnthropic claude-3-5-sonnet-20240620 4.02s
tools 0.01s
search 0.00s
agent 4.62s
ChatAnthropic claude-3-5-sonnet-20240620 4.62s
Some runs have been hidden. Show 4 hidden runs
LangGraph
Playground
Add to
Run
Feedback
Metadata
Run ID
Trace
6:30
Input
HUMAN
what is the weather in sf
Rendered Output
HUMAN
what is the weather in sf
AI
To get the current weather in San Francisco, we'll need to use the search function to look up this information online. Let me do that for you.
search toolu_01QyTeaPtmBM6cD9vCSzu8a7
{
"query": "current weather in San Francisco"
}
JSON

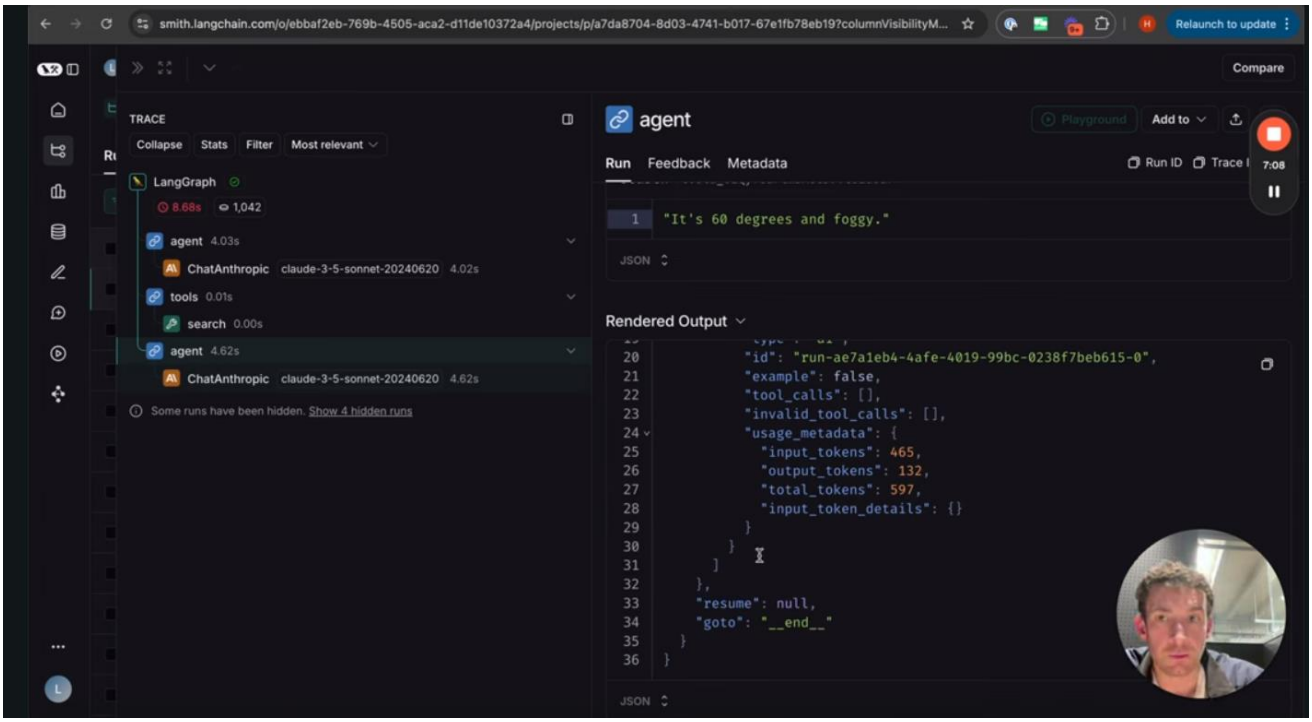

smith.langchain.com/o/ebbaf2eb-769b-4505-aca2-d11de10372a4/projects/p/a7da8704-8d03-4741-b017-67e1fb78eb19?columnVisibilityM...
Relaunch to update
Compare
TRACE
Collapse
Stats
Filter
Most relevant
LangGraph
8.68s
1,042
agent 4.03s
ChatAnthropic claude-3-5-sonnet-20240620 4.02s
tools 0.01s
search 0.00s
agent 4.62s
ChatAnthropic claude-3-5-sonnet-20240620 4.62s
Some runs have been hidden. Show 4 hidden runs
agent
Playground
Add to
Run
Feedback
Metadata
Run ID
Trace
6:35
Input
HUMAN
what is the weather in sf
Rendered Output
{
"output": {
"graph": null,
"update": {
"messages": [
{
"content": [
{
"text": "To get the current weather in San Francisco, we'll need to use the search function to look up this information online. Let me do that for you.",
"type": "text"
},
{
"id": "toolu_01QyTeaPtmBM6cD9vCSzu8a7",
"input": {
"query": "current weather in San Francisco"
},


smith.langchain.com/o/ebbaf2eb-769b-4505-aca2-d11de10372a4/projects/p/a7da8704-8d03-4741-b017-67e1fb78eb19?columnVisibilityM...
Relaunch to update
Compare
TRACE
Collapse
Stats
Filter
Most relevant
LangGraph
8.68s
1,042
agent 4.03s
ChatAnthropic claude-3-5-sonnet-20240620 4.02s
tools 0.01s
search 0.00s
agent 4.62s
ChatAnthropic claude-3-5-sonnet-20240620 4.62s
Some runs have been hidden. Show 4 hidden runs
agent
Playground
Add to
Run
Feedback
Metadata
Run ID
Trace
6:44
Input
HUMAN
what is the weather in sf
Rendered Output
"type": "tool_use"
"additional_kwargs": {},
"response_metadata": {
"id": "msg_018inyTqAYSVoxziejqAaBNX",
"model": "claude-3-5-sonnet-20240620",
"stop_reason": "tool_use",
"stop_sequence": null,
"usage": {
"input_tokens": 358,
"output_tokens": 87
},
"type": "ai",
"id": "run-974b9aa6-b6b6-4009-88e4-bb412600e7a
"example": false,
JSON

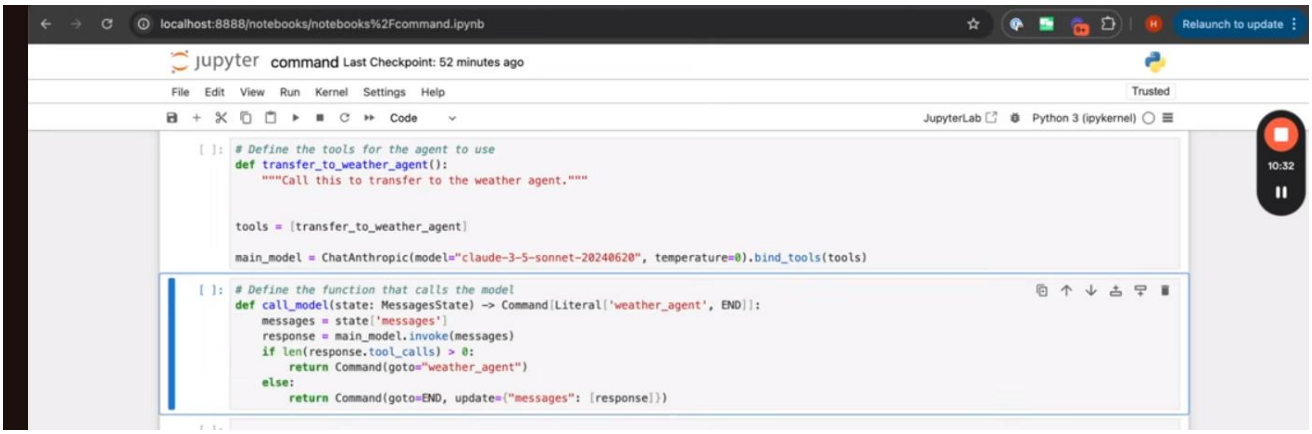

smith.langchain.com/o/ebbaf2eb-769b-4505-aca2-d11de10372a4/projects/p/a7da8704-8d03-4741-b017-67e1fb78eb19?columnVisibilityM...
Relaunch to update
Compare
TRACE
Collapse
Stats
Filter
Most relevant
LangGraph
8.68s
1,042
agent 4.03s
ChatAnthropic claude-3-5-sonnet-20240620 4.02s
tools 0.01s
search 0.00s
agent 4.62s
ChatAnthropic claude-3-5-sonnet-20240620 4.62s
Some runs have been hidden. Show 4 hidden runs
agent
Playground
Add to
Run
Feedback
Metadata
Run ID
Trace
6:52
Input
HUMAN
what is the weather in sf
Rendered Output
"type": "tool_call"
"invalid_tool_calls": [],
"usage_metadata": {
"input_tokens": 358,
"output_tokens": 87,
"total_tokens": 445,
"input_token_details": {}
"resume": null,
"goto": "tools"
JSON


smith.langchain.com/o/ebbaf2eb-769b-4505-aca2-d11de10372a4/projects/p/a7da8704-8d03-4741-b017-67e1fb78eb19?columnVisibilityM...
Relaunch to update
Compare
TRACE
Collapse
Stats
Filter
Most relevant
LangGraph
8.68s
1,042
agent 4.03s
ChatAnthropic claude-3-5-sonnet-20240620 4.02s
tools 0.01s
search 0.00s
agent 4.62s
ChatAnthropic claude-3-5-sonnet-20240620 4.62s
Some runs have been hidden. Show 4 hidden runs
agent
Playground
Add to
Run
Feedback
Metadata
Run ID
Trace
6:55
Input
HUMAN
what is the weather in sf
AI
To get the current weather in San Francisco, we'll need to use the search function to look up this information online. Let me do that for you.
search toolu_01QyTeaPtmBM6cD9vCSzu8a7
1 {
2 "query": "current weather in San Francisco"
3 }
JSON
TOOL
search toolu_01QyTeaPtmBM6cD9vCSzu8a7
1 "It's 60 degrees and foggy."

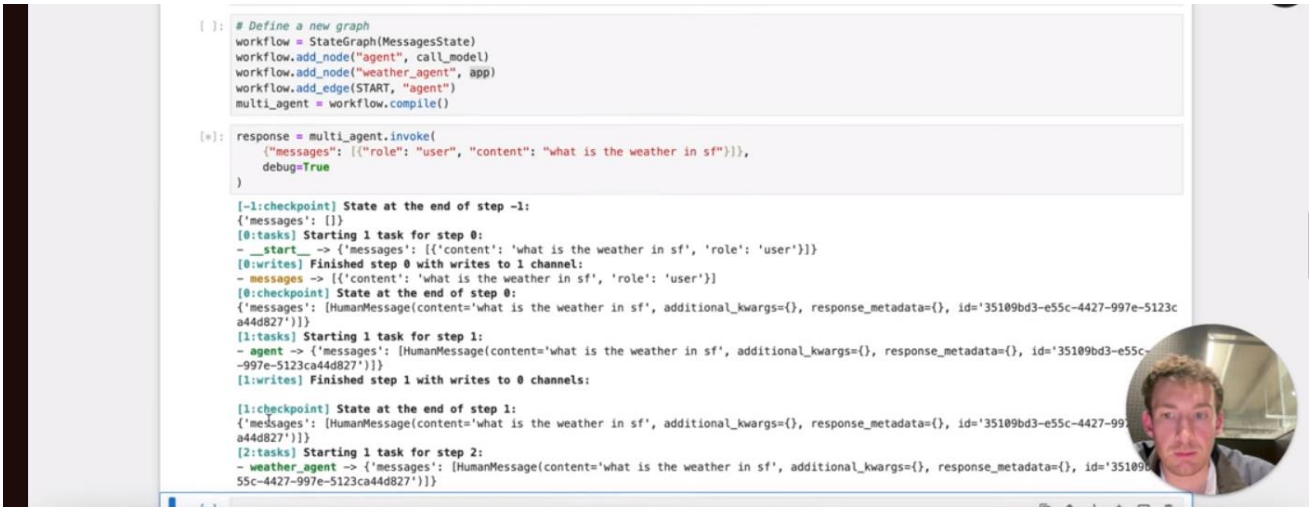

smith.langchain.com/o/ebbaf2eb-769b-4505-aca2-d11de10372a4/projects/p/a7da8704-8d03-4741-b017-67e1fb78eb19?columnVisibilityM...
Relaunch to update
Compare
TRACE
Collapse
Stats
Filter
Most relevant
LangGraph
8.68s
1,042
agent 4.03s
ChatAnthropic claude-3-5-sonnet-20240620 4.02s
tools 0.01s
search 0.00s
agent 4.62s
ChatAnthropic claude-3-5-sonnet-20240620 4.62s
Some runs have been hidden. Show 4 hidden runs
agent
Playground
Add to
Run
Feedback
Metadata
Run ID
Trace
7:00
1 "It's 60 degrees and foggy."
JSON
Rendered Output
"output": {
"graph": null,
"update": {
"messages": [
{
"content": "Based on the search results, I can tell you that the current weather in San Francisco is:\n\nTemperature: 60 degrees Fahrenheit\nConditions: Foggy\n\nSan Francisco is known for its microclimates and frequent fog, especially during the summer months. The cool temperature and foggy conditions are quite typical for the
Remember that weather can change throughout the day, so if
any activities, it's a good idea to check for updates clo
time.\n\nIs there anything else you'd like to know about
Francisco or any other information I can help you with?"
"additional_kwargs": {},
"response_metadata": {
"id": "msg_01LLEfNdSCT2EN6YfaA3qqYk",
JSON

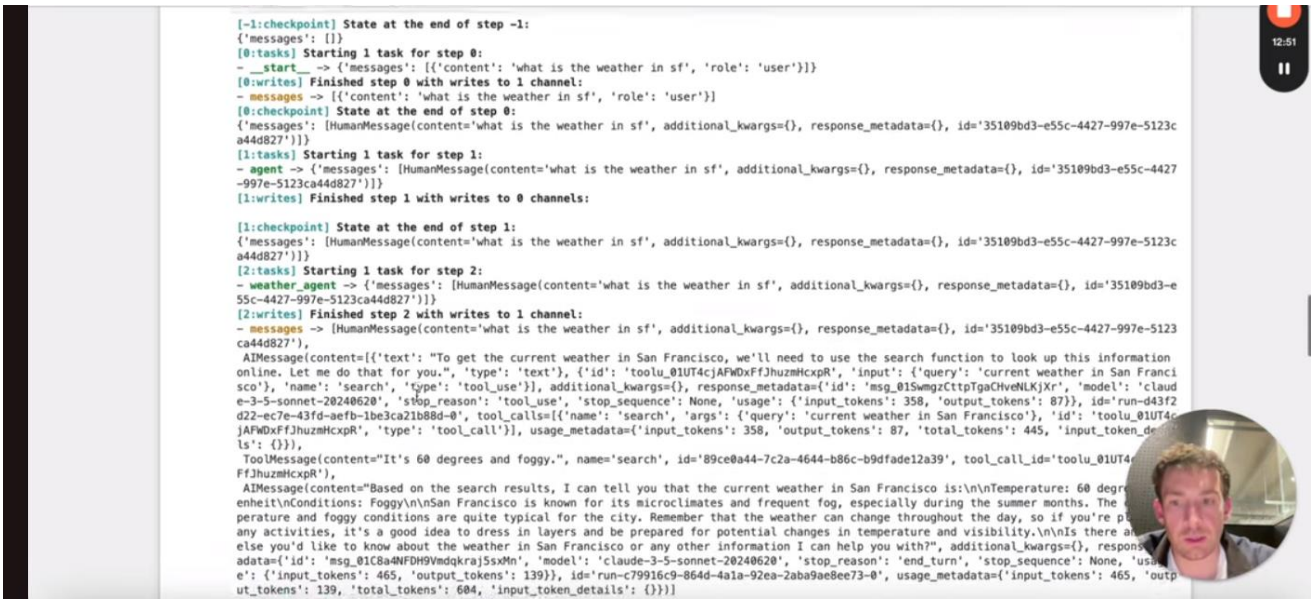


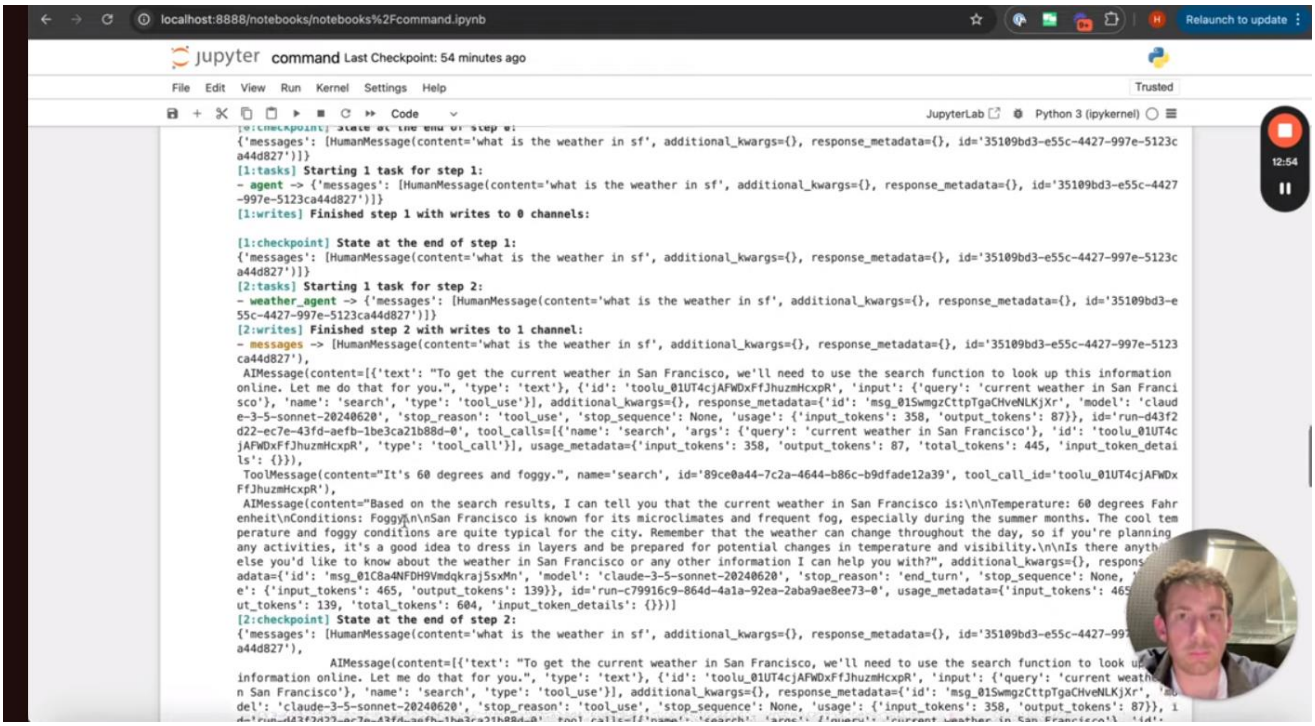
Let us now see how to use the Command in a multi-agent setup as below

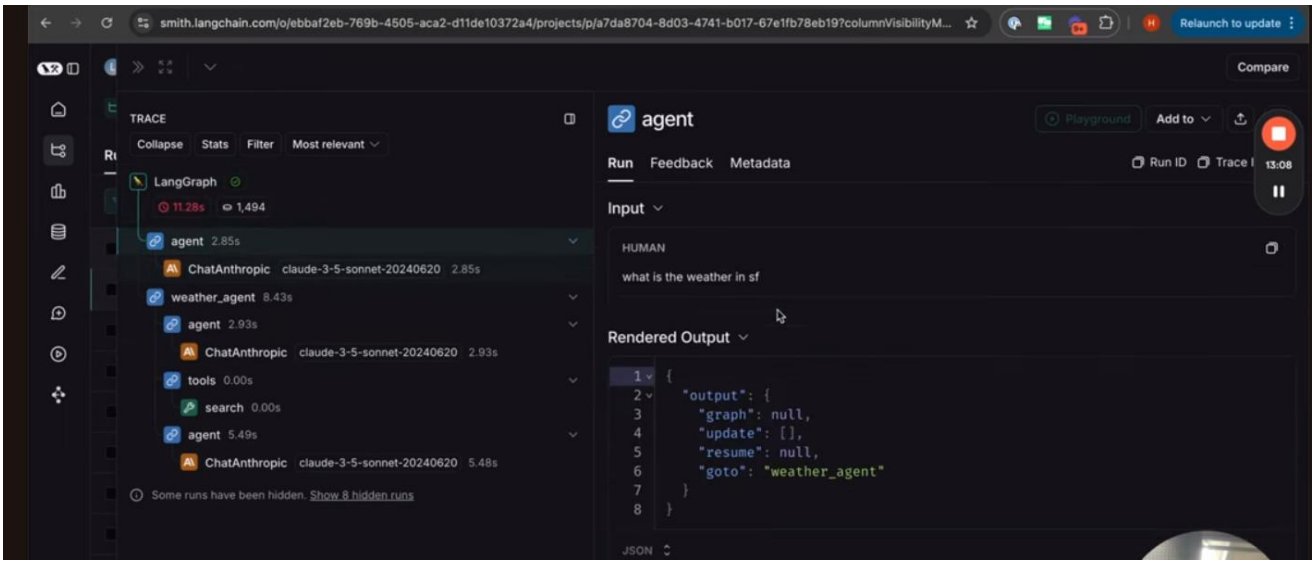


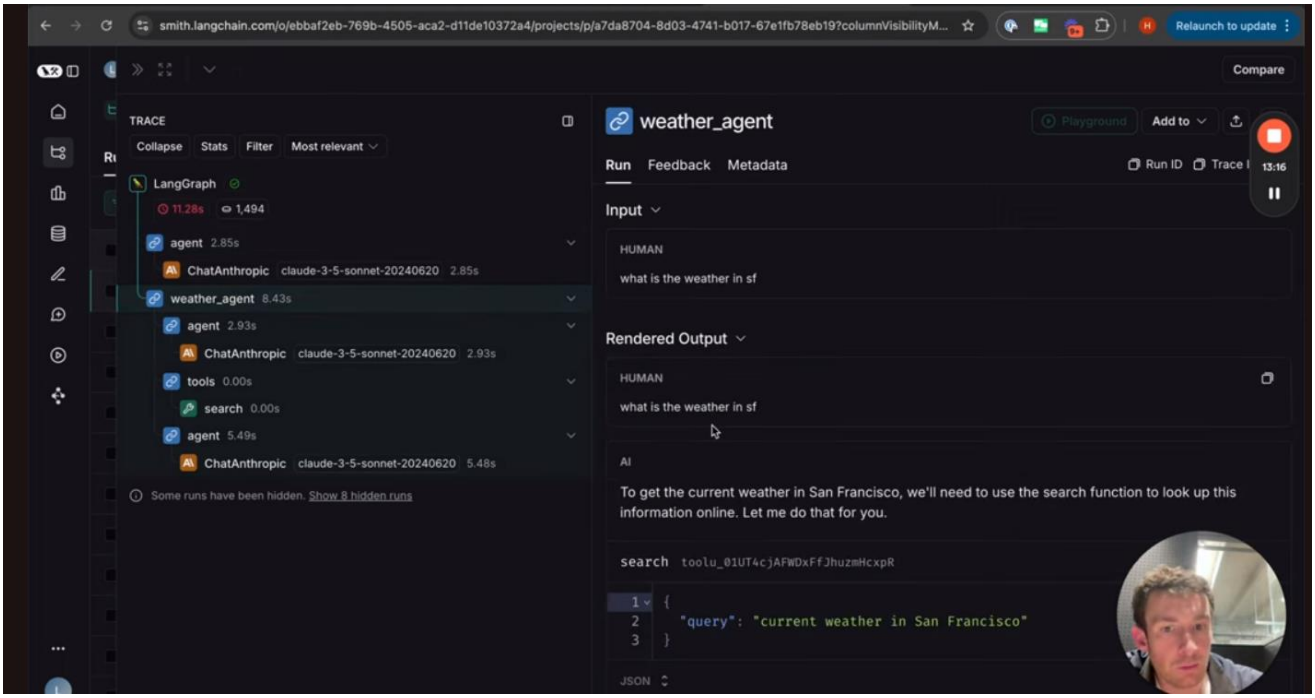
This is how we can transfer to another agent using the Command

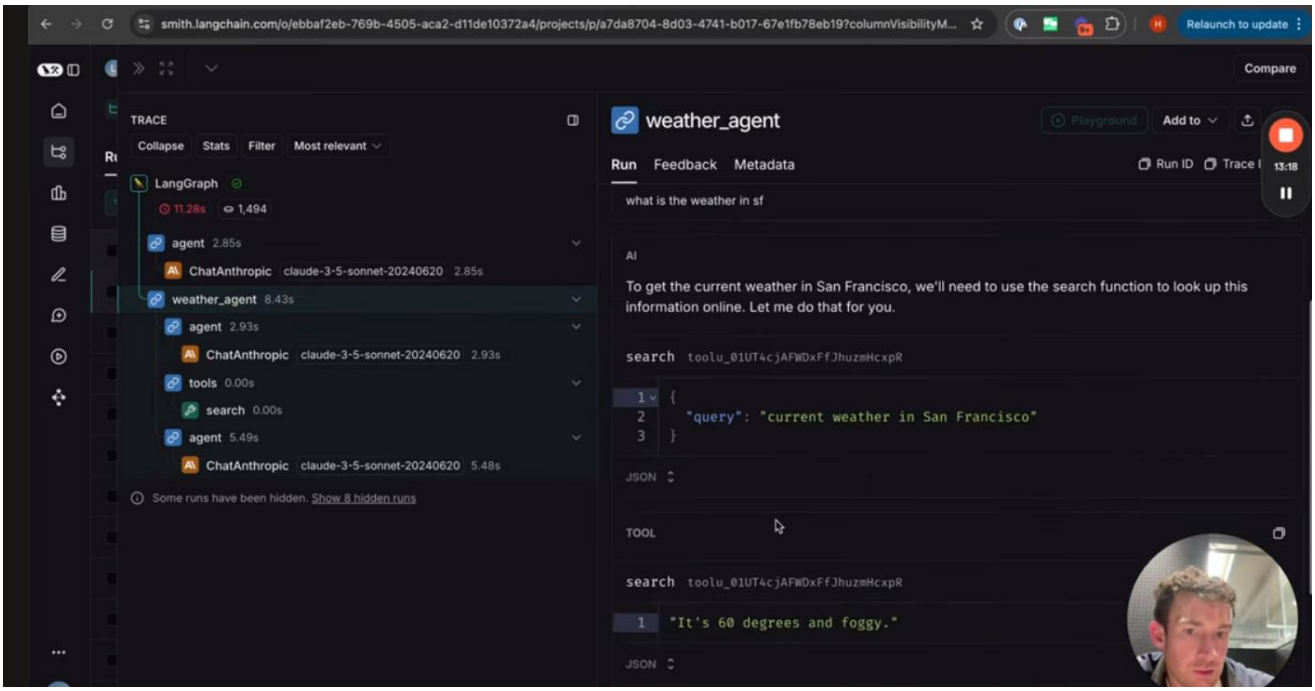



[-1:checkpoint] State at the end of step -1:
{'messages': []}
[0:tasks] Starting 1 task for step 0:
- __start__ -> {'messages': [{'content': 'what is the weather in sf', 'role': 'user'}]}
[0:writes] Finished step 0 with writes to 1 channel:
- messages -> [{'content': 'what is the weather in sf', 'role': 'user'}]
[0:checkpoint] State at the end of step 0:
[1:tasks] Starting 1 task for step 1:
- agent -> {'messages': [HumanMessage(content='what is the weather in sf', additional_kwargs={}, response_metadata={}, id='35109bd3-e55c-4427-997e-5123ca44d827')]}
[1:writes] Finished step 1 with writes to 0 channels:
[1:checkpoint] State at the end of step 1:
[2:tasks] Starting 1 task for step 2:
- weather_agent -> {'messages': [HumanMessage(content='what is the weather in sf', additional_kwargs={}, response_metadata={}, id='35109bd3-e55c-4427-997e-5123ca44d827')]}
[2:writes] Finished step 2 with writes to 1 channel:
- messages -> [HumanMessage(content='what is the weather in sf', additional_kwargs={}, response_metadata={}, id='35109bd3-e55c-4427-997e-5123ca44d827'),
AIMessage(content=[{'text': "To get the current weather in San Francisco, we'll need to use the search function to look up this information online. Let me do that for you.", 'type': 'text'}, {'id': 'toolu_01UT4cjAFWDxFfJhuzmHcxpR', 'input': {'query': 'current weather in San Francisco'}, 'name': 'search', 'type': 'tool_use'}], additional_kwargs={}, response_metadata={'id': 'msg_01SwmgzCttpTgaCHveNLKjXr', 'model': 'claude-3-5-sonnet-20240620', 'stop_reason': 'tool_use', 'stop_sequence': None, 'usage': {'input_tokens': 358, 'output_tokens': 87}}, id='run-d43f2d22-ec7e-43fd-aefb-1be3ca21b88d-0', tool_calls=[{'name': 'search', 'args': {'query': 'current weather in San Francisco'}, 'id': 'toolu_01UT4cjAFWDxFfJhuzmHcxpR', 'type': 'tool_call'}], usage_metadata={'input_tokens': 358, 'output_tokens': 87, 'total_tokens': 445, 'input_token_details': {}}),
ToolMessage(content="It's 60 degrees and foggy.", name='search', id='89ce0a44-7c2a-4644-b86c-b9dfade12a39', tool_call_id='toolu_01UT4cjAFWDxFfJhuzmHcxpR'),
AIMessage(content="Based on the search results, I can tell you that the current weather in San Francisco is:\n\nTemperature: 60 degrees Fahrenheit\nConditions: Foggy\n\nSan Francisco is known for its microclimates and frequent fog, especially during the summer months. The cool temperature and foggy conditions are quite typical for the city. Remember that the weather can change throughout the day, so if you're planning any activities, it's a good idea to dress in layers and be prepared for potential changes in temperature and visibility.\n\nIs there anything else you'd like to know about the weather in San Francisco or any other information I can help you with?", additional_kwargs={}, response_metadata={'id': 'msg_01C8a4NFDH9Vmdqkraj5sxMn', 'model': 'claude-3-5-sonnet-20240620', 'stop_reason': 'end_turn', 'stop_sequence': None, 'usage': {'input_tokens': 465, 'output_tokens': 139}}, id='run-c79916c9-864d-4a1a-92ea-2aba9ae8ee73-0', usage_metadata={'input_tokens': 465, 'output_tokens': 139, 'total_tokens': 604, 'input_token_details': {}})]
12:51


localhost:8888/notebooks/notebooks%2Fcommand.ipynb
Relaunch to update
jupyter command Last Checkpoint: 54 minutes ago
File Edit View Run Kernel Settings Help
Trusted
Code
JupyterLab
Python 3 (ipykernel)
[1:tasks] Starting 1 task for step 1:
[1:writes] Finished step 1 with writes to 0 channels:
[1:checkpoint] State at the end of step 1:
[2:tasks] Starting 1 task for step 2:
[2:writes] Finished step 2 with writes to 1 channel:
[2:checkpoint] State at the end of step 2:
12:54


smith.langchain.com/o/ebbaf2eb-769b-4505-aca2-d11de10372a4/projects/p/a7da8704-8d03-4741-b017-67e1fb78eb19?columnVisibilityM...
Relaunch to update
Compare
TRACE
Collapse Stats Filter Most relevant
LangGraph
11.28s 1,494
agent 2.85s
ChatAnthropic claude-3-5-sonnet-20240620 2.85s
weather_agent 8.43s
agent 2.93s
ChatAnthropic claude-3-5-sonnet-20240620 2.93s
tools 0.00s
search 0.00s
agent 5.49s
ChatAnthropic claude-3-5-sonnet-20240620 5.48s
Some runs have been hidden. Show 8 hidden runs
agent
Playground
Add to
Run Feedback Metadata
Run ID
Input
HUMAN
what is the weather in sf
Rendered Output
{
"output": {
"graph": null,
"update": [],
"resume": null,
"goto": "weather_agent"
}
}
JSON
13:08


smith.langchain.com/o/ebbaf2eb-769b-4505-aca2-d11de10372a4/projects/p/a7da8704-8d03-4741-b017-67e1fb78eb19?columnVisibilityM...
Relaunch to update
Compare
TRACE
Collapse
Stats
Filter
Most relevant
LangGraph
11.28s
1,494
agent 2.85s
ChatAnthropic claude-3-5-sonnet-20240620 2.85s
weather_agent 8.43s
agent 2.93s
ChatAnthropic claude-3-5-sonnet-20240620 2.93s
tools 0.00s
search 0.00s
agent 5.49s
ChatAnthropic claude-3-5-sonnet-20240620 5.48s
Some runs have been hidden. Show 8 hidden runs
weather_agent
Playground
Add to
Run
Feedback
Metadata
Run ID
13:16
Input
HUMAN
what is the weather in sf
Rendered Output
HUMAN
what is the weather in sf
AI
To get the current weather in San Francisco, we'll need to use the search function to look up this information online. Let me do that for you.
search toolu_01UT4cjAFWDxFfJhuzmHcxpR
{
"query": "current weather in San Francisco"
}
JSON


smith.langchain.com/o/ebbaf2eb-769b-4505-aca2-d11de10372a4/projects/p/a7da8704-8d03-4741-b017-67e1fb78eb19?columnVisibilityM...
Relaunch to update
Compare
TRACE
Collapse
Stats
Filter
Most relevant
LangGraph
11.28s
1,494
agent 2.85s
ChatAnthropic claude-3-5-sonnet-20240620 2.85s
weather_agent 8.43s
agent 2.93s
ChatAnthropic claude-3-5-sonnet-20240620 2.93s
tools 0.00s
search 0.00s
agent 5.49s
ChatAnthropic claude-3-5-sonnet-20240620 5.48s
Some runs have been hidden. Show 8 hidden runs
weather_agent
Playground
Add to
Run
Feedback
Metadata
Run ID
13:18
what is the weather in sf
AI
To get the current weather in San Francisco, we'll need to use the search function to look up this information online. Let me do that for you.
search toolu_01UT4cjAFWDxFfJhuzmHcxpR
{
"query": "current weather in San Francisco"
}
JSON
TOOL
search toolu_01UT4cjAFWDxFfJhuzmHcxpR
"It's 60 degrees and foggy."
JSON