

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...>

Multi-agent architectures

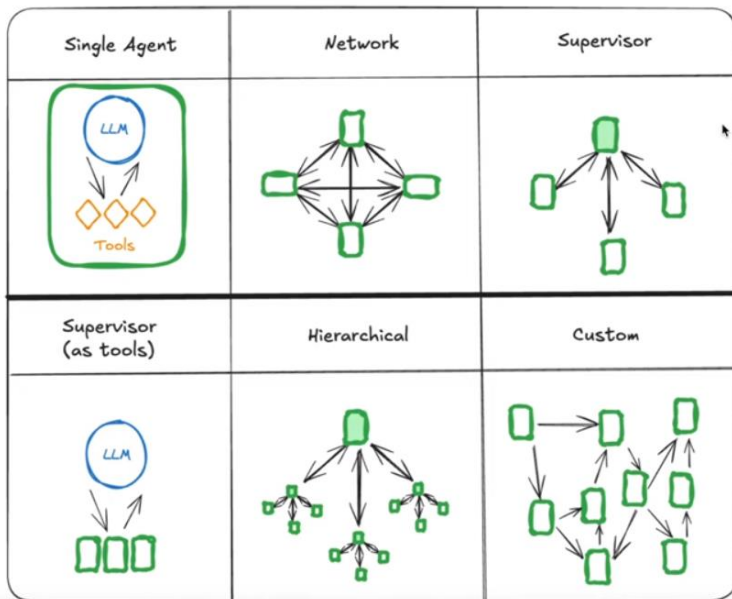


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0:21



https://langchain-ai.github.io/langgraph/how-tos/graph-api/#combine-control-flow-and-state-updates-with-command

LangGraph



Search



GitHub
cli@0.3.4 15.4k 2.7k

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Combine control flow and state updates with Command

It can be useful to combine control flow (edges) and state updates (nodes). For example, you might want to BOTH perform state updates AND decide which node to go to next in the SAME node. LangGraph provides a way to do so by returning a [Command](#) object from node functions:

```
def my_node(state: State) -> Command[Literal["my_other_node"]]:
    return Command(
        # state update
        update={"foo": "bar"},
        # control flow
        goto="my_other_node"
    )
```

We show an end-to-end example below. Let's create a simple graph with 3 nodes: A, B and C. We will first execute node A, and then decide whether to go to Node B or Node C next based on the output of node A.

API Reference: [StateGraph](#) | [START](#) | [Command](#)

```
import random
from typing_extensions import TypedDict, Literal
from langgraph.graph import StateGraph, START
from langgraph.types import Command
```

```
# Define graph state
class State(TypedDict):
    foo: str
```

```
# Define the nodes
```

```
def node_a(state: State) -> Command[Literal["node_b", "node_c"]]:
    print("Called A")
```

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Setup

Define and update state

Define state

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Process state updates with reducers

MessagesState

Define input and output schemas

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Create and control loops

Impose a recursion limit

Async

Combine control flow and state updates with Command

Navigate to a node in a parent


```

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:
{'messages': [HumanMessage(content='what is the weather in sf', additional_kwargs={}, response_metadata={}, id='6e0d9ddb-3c1e-4ad6-8141-cd9606f1a6e')]}
[1:tasks] Starting 1 task for step 1:
- agent -> {'messages': [HumanMessage(content='what is the weather in sf', additional_kwargs={}, response_metadata={}, id='6e0d9ddb-3c1e-4ad6-8141-cd9606f1a6e')]}
[1:writes] Finished step 1 with writes to 1 channel:
- messages -> [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_010yTeaPtM6cD9vCSzu8a7', 'input': {'query': 'current weather in San Francisco', 'name': 'search', 'type': 'tool_use'}, additional_kwargs={}, response_metadata={'id': 'msg_018inytQAYSVoxziejQaABXN', 'model': 'claude-3-5-sonnet-20240620', 'stop_reason': 'tool_use', 'stop_sequence': None, 'usage': {'input_tokens': 358, 'output_tokens': 87}}, id='run-974b9a6b-b6b6-4009-88e4-bb41260e7a1-0', tool_calls=[{'name': 'search', 'args': {'query': 'current weather in San Francisco'}}, {'name': 'toolu_010yTeaPtM6cD9vCSzu8a7', 'type': 'tool_call'}], usage_metadata={'input_tokens': 358, 'output_tokens': 87, 'total_tokens': 445, 'input_token_details': {}}])]
[1:checkpoint] State at the end of step 1:
{'messages': [HumanMessage(content='what is the weather in sf', additional_kwargs={}, response_metadata={}, id='6e0d9ddb-3c1e-4ad6-8141-cd9606f1a6e'), 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_010yTeaPtM6cD9vCSzu8a7', 'input': {'query': 'current weather in San Francisco', 'name': 'search', 'type': 'tool_use'}, additional_kwargs={}, response_metadata={'id': 'msg_018inytQAYSVoxziejQaABXN', 'model': 'claude-3-5-sonnet-20240620', 'stop_reason': 'tool_use', 'stop_sequence': None, 'usage': {'input_tokens': 358, 'output_tokens': 87}}, id='run-974b9a6b-b6b6-4009-88e4-bb41260e7a1-0', tool_calls=[{'name': 'search', 'args': {'query': 'current weather in San Francisco'}}, {'name': 'toolu_010yTeaPtM6cD9vCSzu8a7', 'type': 'tool_call'}], usage_metadata={'input_tokens': 358, 'output_tokens': 87, 'total_tokens': 445, 'input_token_details': {}}])]
[2:tasks] Starting 1 task for step 2:
- tools -> {'messages': [HumanMessage(content='what is the weather in sf', additional_kwargs={}, response_metadata={}, id='6e0d9ddb-3c1e-4ad6-8141-cd9606f1a6e'), 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_010yTeaPtM6cD9vCSzu8a7', 'input': {'query': 'current weather in San Francisco', 'name': 'search', 'type': 'tool_use'}, additional_kwargs={}, response_metadata={'id': 'msg_018inytQAYSVoxziejQaABXN', 'model': 'claude-3-5-sonnet-20240620', 'stop_reason': 'tool_use', 'stop_sequence': None, 'usage': {'input_tokens': 358, 'output_tokens': 87}}, id='run-974b9a6b-b6b6-4009-88e4-bb41260e7a1-0', tool_calls=[{'name': 'search', 'args': {'query': 'current weather in San Francisco'}}, {'name': 'toolu_010yTeaPtM6cD9vCSzu8a7', 'type': 'tool_call'}], usage_metadata={'input_tokens': 358, 'output_tokens': 87, 'total_tokens': 445, 'input_token_details': {}}])]
[2:writes] Finished step 2 with writes to 1 channel:
- messages -> [ToolMessage(content='It's 68 degrees and foggy.', name='search', tool_call_id='toolu_010yTeaPtM6cD9vCSzu8a7')]
[2:checkpoint] State at the end of step 2:
{'messages': [HumanMessage(content='what is the weather in sf', additional_kwargs={}, response_metadata={}, id='6e0d9ddb-3c1e-4ad6-8141-cd9606f1a6e'), 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_010yTeaPtM6cD9vCSzu8a7', 'input': {'query': 'current weather in San Francisco', 'name': 'search', 'type': 'tool_use'}, additional_kwargs={}, response_metadata={'id': 'msg_018inytQAYSVoxziejQaABXN', 'model': 'claude-3-5-sonnet-20240620', 'stop_reason': 'tool_use', 'stop_sequence': None, 'usage': {'input_tokens': 358, 'output_tokens': 87}}, id='run-974b9a6b-b6b6-4009-88e4-bb41260e7a1-0', tool_calls=[{'name': 'search', 'args': {'query': 'current weather in San Francisco'}}, {'name': 'toolu_010yTeaPtM6cD9vCSzu8a7', 'type': 'tool_call'}], usage_metadata={'input_tokens': 358, 'output_tokens': 87, 'total_tokens': 445, 'input_token_details': {}}]), ToolMessage(content='It's 68 degrees and foggy.', name='search', tool_call_id='toolu_010yTeaPtM6cD9vCSzu8a7')]}

```



```
d='run-974b9a6b-b6b6-4009-8864-bb4126087a1-0', tool_calls=[{'name': 'search', 'args': {'query': 'current weather in San Francisco'}}, {'id': 'toolu_010yTeaPtM6cD9vCSz8u7', 'type': 'tool_call'}], usage_metadata={'input_tokens': 358, 'output_tokens': 87, 'total_tokens': 445, 'input_token_details': {}}}
```

[2>writes] Finished step 2 with writes to 1 channel:

```
- messages -> [ToolMessage(content='It's 60 degrees and foggy.', name='search', tool_call_id='toolu_010yTeaPtM6cD9vCSz8u7')]
```

[2>checkpoint] State at the end of step 2:

```
{'messages': [HumanMessage(content='what is the weather in sf', additional_kwargs={}, response_metadata={}, id='6e089ddb-3c1e-4ad6-b141-cd960f1a6e')],
```

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_010yTeaPtM6cD9vCSz8u7', 'input': {'query': 'current weather in San Francisco', 'name': 'search', 'type': 'tool_use'}, additional_kwargs={}, response_metadata={'id': 'msg_0181nyTqV5VoxziejAaBNX', 'model': 'claude:3.5-sonnet-20240620', 'stop_reason': 'tool_use', 'stop_sequence': None, 'usage': {'input_tokens': 358, 'output_tokens': 87}}, 'id': 'run-974b9a6b-b6b6-4009-8864-bb4126087a1-0', tool_calls=[{'name': 'search', 'args': {'query': 'current weather in San Francisco'}}, {'id': 'toolu_010yTeaPtM6cD9vCSz8u7', '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='e5da52c1-7892-4b4a-b913-187828e5d362', tool_call_id='toolu_010yTeaPtM6cD9vCSz8u7')]

[3>tasks] Starting 1 task for step 3:

```
- agent -> {'messages': [HumanMessage(content='what is the weather in sf', additional_kwargs={}, response_metadata={}, id='6e089ddb-3c1e-4ad6-b141-cd960f1a6e')],
```

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_010yTeaPtM6cD9vCSz8u7', 'input': {'query': 'current weather in San Francisco', 'name': 'search', 'type': 'tool_use'}, additional_kwargs={}, response_metadata={'id': 'msg_0181nyTqV5VoxziejAaBNX', 'model': 'claude:3.5-sonnet-20240620', 'stop_reason': 'tool_use', 'stop_sequence': None, 'usage': {'input_tokens': 358, 'output_tokens': 87}}, 'id': 'run-974b9a6b-b6b6-4009-8864-bb4126087a1-0', tool_calls=[{'name': 'search', 'args': {'query': 'current weather in San Francisco'}}, {'id': 'toolu_010yTeaPtM6cD9vCSz8u7', 'type': 'tool_call'}], usage_metadata={'input_tokens': 358, 'output_tokens': 87, 'total_tokens': 445, 'input_token_details': {}}],

AIMessage(content=[{'text': "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 weather can change throughout the day, so if you're planning any activities, it's a good idea to check for updates closer to the time.\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?", 'type': 'text'}, {'id': 'toolu_010yTeaPtM6cD9vCSz8u7', 'input': {'query': 'current weather in San Francisco', 'name': 'search', 'type': 'tool_use'}, additional_kwargs={}, response_metadata={'id': 'msg_0181LEfNdsA3a3qYk', 'model': 'claude:3.5-sonnet-20240620', 'stop_reason': 'end_turn', 'stop_sequence': None, 'usage': {'input_tokens': 358, 'output_tokens': 132}}, 'id': 'run-974b9a6b-b6b6-4009-8864-bb4126087a1-0', tool_calls=[{'name': 'search', 'args': {'query': 'current weather in San Francisco'}}, {'id': 'toolu_010yTeaPtM6cD9vCSz8u7', 'type': 'tool_call'}], usage_metadata={'input_tokens': 465, 'output_tokens': 132, 'total_tokens': 597, 'input_token_details': {}}]

[3>checkpoint] State at the end of step 3:

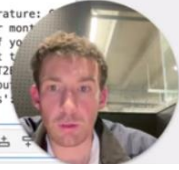
```
{'messages': [HumanMessage(content='what is the weather in sf', additional_kwargs={}, response_metadata={}, id='6e089ddb-3c1e-4ad6-b141-cd960f1a6e')],
```



```

n San Francisco', 'name': 'search', 'type': 'tool_use'}, additional_kwargs={}, response_metadata={'id': 'msg_0181nyTqAYSvXozjieqAaBNX', 'model': 'claude-3.5-sonnet-20240628', 'stop_reason': 'tool_use', 'stop_sequence': None, 'usage': {'input_tokens': 358, 'output_tokens': 87}}, id='run-974b9aa6-b6b6-4009-8864-bb4126087e1-0', tool_calls=[{'name': 'search', 'args': {'query': 'current weather in San Francisco'}, 'tool_u': 'toolu_010yTeaPtM6cD9vCSzua87', 'type': 'tool_call'}], usage_metadata={'input_tokens': 358, 'output_tokens': 87, 'total_tokens': 445, 'input_t_token_details': {}}, ToolMessage(content='It's 60 degrees and foggy.', name='search', id='e5da52c1-7892-4b4a-b913-187828e5d362', tool_call_id='toolu_010yTeaPtM6cD9vCSzua87')
[3>writes] Finished step 3 with writes to 1 channel:
-- messages --> [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 weather can change throughout the day, so if you're planning any activities, it's a good idea to check for updates closer to the time.\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_0181LEfN0SC72EnYfAA3qkq', 'model': 'claude-3.5-sonnet-20240628', 'stop_reason': 'end_turn', 'stop_sequence': None, 'usage': {'input_tokens': 465, 'output_tokens': 132}}, id='run-ae7a1eb4-4afe-4019-99bc-0238f7be6b15-0', usage_metadata={'input_tokens': 465, 'output_tokens': 132, 'total_tokens': 597, 'input_token_details': {}})
[3>checkpoint] State at the end of step 3:
{'messages': [HumanMessage(content='what is the weather in sf', additional_kwargs={}, response_metadata={'id': '6e0d9dbd-3c1e-4ad6-b141-cd96060f1a6e'}, 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_010yTeaPtM6cD9vCSzua87', 'input': {'query': 'current weather in San Francisco'}, 'name': 'search', 'type': 'tool_use'}, additional_kwargs={}, response_metadata={'id': 'msg_0181nyTqAYSvXozjieqAaBNX', 'model': 'claude-3.5-sonnet-20240628', 'stop_reason': 'tool_use', 'stop_sequence': None, 'usage': {'input_tokens': 358, 'output_tokens': 87}}, id='run-974b9aa6-b6b6-4009-8864-bb4126087e1-0', tool_calls=[{'name': 'search', 'args': {'query': 'current weather in San Francisco'}, 'tool_u': 'toolu_010yTeaPtM6cD9vCSzua87', 'type': 'tool_call'}], usage_metadata={'input_tokens': 358, 'output_tokens': 87, 'total_tokens': 445, 'input_t_token_details': {}}, ToolMessage(content='It's 60 degrees and foggy.', name='search', id='e5da52c1-7892-4b4a-b913-187828e5d362', tool_call_id='toolu_010yTeaPtM6cD9vCSzua87'), 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 weather can change throughout the day, so if you're planning any activities, it's a good idea to check for updates closer to the time.\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_0181LEfN0SC72EnYfAA3qkq', 'model': 'claude-3.5-sonnet-20240628', 'stop_reason': 'end_turn', 'stop_sequence': None, 'usage': {'input_tokens': 465, 'output_tokens': 132}}, id='run-ae7a1eb4-4afe-4019-99bc-0238f7be6b15-0', usage_metadata={'input_tokens': 465, 'output_tokens': 132, 'total_tokens': 597, 'input_token_details': {}})])

```



smith.langchain.com/o/ebbf2eb-769b-4505-aca2-d11de10372a4/projects/p/a7da8704-8d03-4741-b017-67e1fb78eb19?columnVisibilityM...

Relaunch to update

TRACE

CollapseStatsFilterMost relevant

LangGraph

8.68s1,042

agent4.03s

ChatAnthropicclaude-3-5-sonnet-202406204.02s

tools0.01s

search0.00s

agent4.62s

ChatAnthropicclaude-3-5-sonnet-202406204.62s

Some runs have been hidden. [Show 4 hidden runs](#)

LangGraph

RunFeedbackMetadata

Run IDTrace ID6:30

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.

searchtoolu_01QyTeaPtmbM6cD9vCSzu8a7

1

{


2

"query": "current weather in San Francisco"

3

}

JSON



smith.langchain.com/o/ebbf2eb-769b-4505-aca2-d11de10372a4/projects/p/a7da8704-8d03-4741-b017-67e1fb78eb19?columnVisibilityM...

Relaunch to update

TRACE

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8.68s1,042

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ChatAnthropicclaude-3-5-sonnet-202406204.02s

tools0.01s

search0.00s

agent4.62s

ChatAnthropicclaude-3-5-sonnet-202406204.62s

Some runs have been hidden. [Show 4 hidden runs](#)

agent

RunFeedbackMetadata

Run IDTrace ID6:35


Input

HUMAN

what is the weather in sf

Rendered Output

```
1 {
2   "output": {
3     "graph": null,
4     "update": {
5       "messages": [
6         {
7           "content": [
8             {
9               "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.",
10              "type": "text"
11            },
12            {
13              "id": "toolu_01QyTeaPtmbM6cD9vCSzu8a7",
14              "input": {
15                "query": "current weather in San Francisco"
16              },
17            }
18          ]
19        }
20      ]
21    }
22  }
```



smith.langchain.com/o/ebba72eb-769b-4505-aca2-d11de10372a4/projects/p/a7da8704-8d03-4741-b017-67e1fb78eb19?columnVisibilityM...

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

Run Feedback Metadata

Input


HUMAN

what is the weather in sf

Rendered Output

```
18     "type": "tool_use",
19   },
20 },
21   "additional_kwargs": {},
22   "response_metadata": {
23     "id": "msg_018inyTqAYSVoxxiejqAaBNX",
24     "model": "claude-3-5-sonnet-20240620",
25     "stop_reason": "tool_use",
26     "stop_sequence": null,
27     "usage": {
28       "input_tokens": 358,
29       "output_tokens": 87
30     }
31   },
32   "type": "ai",
33   "id": "run-974b9aa6-b6b6-4009-88e4-bb412600e7a",
34   "example": false,
35   "usage_metadata": {
36     "input_tokens": 358,
37     "output_tokens": 87,
38     "total_tokens": 445
39   }
40 }
```

JSON



smith.langchain.com/o/ebba72eb-769b-4505-aca2-d11de10372a4/projects/p/a7da8704-8d03-4741-b017-67e1fb78eb19?columnVisibilityM...

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

Run Feedback Metadata

Input


HUMAN

what is the weather in sf

Rendered Output

```
42     "type": "tool_call",
43   },
44 },
45   "invalid_tool_calls": [],
46   "usage_metadata": {
47     "input_tokens": 358,
48     "output_tokens": 87,
49     "total_tokens": 445,
50     "input_token_details": {}
51   }
52 },
53 },
54 },
55   "resume": null,
56   "goto": "tools"
57 }
58 }
```

JSON



smith.langchain.com/o/ebba12eb-769b-4505-aca2-d11de10372a4/projects/p/a7da8704-8d03-4741-b017-67e1fb78eb19?columnVisibilityM...

Relaunch to update

TRACE

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LangGraph

8.68s1,042

agent4.03s

ChatAnthropicclaude-3-5-sonnet-202406204.02s

tools0.01s

search0.00s

agent4.62s

ChatAnthropicclaude-3-5-sonnet-202406204.62s

Some runs have been hidden. [Show 4 hidden runs](#)

agent

PlaygroundAdd toShare

RunFeedbackMetadata

Run IDTrace6:55

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.

searchtoolu_01QyTeaPtMBM6cD9vCSzu8a7

1

{

2

"query": "current weather in San Francisco"

3

}

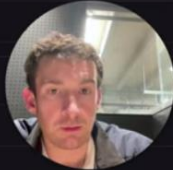
JSON

TOOL

searchtoolu_01QyTeaPtMBM6cD9vCSzu8a7

1

"It's 60 degrees and foggy."



smith.langchain.com/o/ebba12eb-769b-4505-aca2-d11de10372a4/projects/p/a7da8704-8d03-4741-b017-67e1fb78eb19?columnVisibilityM...

Relaunch to update

TRACE

CollapseStatsFilterMost relevant

LangGraph

8.68s1,042

agent4.03s

ChatAnthropicclaude-3-5-sonnet-202406204.02s

tools0.01s

search0.00s

agent4.62s

ChatAnthropicclaude-3-5-sonnet-202406204.62s

Some runs have been hidden. [Show 4 hidden runs](#)

agent

PlaygroundAdd toShare

RunFeedbackMetadata

Run IDTrace7:00

1

"It's 60 degrees and foggy."

JSON

Rendered Output

1

2

3

4

5

6

7

8

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JSON



The screenshot shows the Smith Langchain interface. On the left, a 'TRACE' panel displays a sequence of steps: LangGraph (8.68s), agent (4.03s), ChatAnthropic (4.02s), tools (0.01s), search (0.00s), and another agent (4.62s). The right panel, titled 'agent', shows the 'Run' tab with a single step: "It's 60 degrees and foggy." Below this, the 'Rendered Output' is displayed as a JSON object:

```

{
  "id": "run-ae7a1eb4-4afe-4019-99bc-0238f7beb615-0",
  "example": false,
  "tool_calls": [],
  "invalid_tool_calls": [],
  "usage_metadata": {
    "input_tokens": 465,
    "output_tokens": 132,
    "total_tokens": 597,
    "input_token_details": {}
  },
  "resume": null,
  "goto": "_end_"
}

```

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

The screenshot shows a JupyterLab notebook titled 'command'. The code defines a 'transfer_to_weather_agent' function and a 'call_model' function that returns a 'Command' object to switch between agents.

```

[ ]: # Define the tools for the agent to use
def transfer_to_weather_agent():
    """Call this to transfer to the weather agent."""

tools = [transfer_to_weather_agent]

main_model = ChatAnthropic(model="claude-3-5-sonnet-20240620", temperature=0).bind_tools(tools)

[ ]: # Define the function that calls the model
def call_model(state: MessagesState) -> Command[Literall['weather_agent', END]]:
    messages = state['messages']
    response = main_model.invoke(messages)
    if len(response.tool_calls) > 0:
        return Command(goto="weather_agent")
    else:
        return Command(goto=END, update={"messages": [response]})

```

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

The screenshot shows a JupyterLab notebook with the following code:

```

[ ]: # Define a new graph
workflow = StateGraph(MessagesState)
workflow.add_node("agent", call_model)
workflow.add_node("weather_agent", app)
workflow.add_edge(START, "agent")
multi_agent = workflow.compile()

[*]: response = multi_agent.invoke(
    {"messages": [{"role": "user", "content": "what is the weather in sf"}]},
    debug=True
)

```

The output shows the state of the workflow at each step, including the transfer from the 'agent' to the 'weather_agent'.

```

[-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:
{'messages': [HumanMessage(content='what is the weather in sf', additional_kwargs={}, response_metadata={}, id='35109bd3-e55c-4427-997e-5123ca44d827')]}
[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:
{'messages': [HumanMessage(content='what is the weather in sf', additional_kwargs={}, response_metadata={}, id='35109bd3-e55c-4427-997e-5123ca44d827')]}
[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')]}

```



```
[1:checkpoint] State at the end of step ~1:
{'messages': [1]}
[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:
{'messages': [HumanMessage(content='what is the weather in sf', additional_kwargs={}, response_metadata={}, id='35109bd3-e55c-4427-997e-5123c-a44d827')]}
[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-5123c-a44d827')]}
[1:writes] Finished step 1 with writes to 0 channels:

[1:checkpoint] State at the end of step 1:
{'messages': [HumanMessage(content='what is the weather in sf', additional_kwargs={}, response_metadata={}, id='35109bd3-e55c-4427-997e-5123c-a44d827')]}
[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-5123c-a44d827')]}
[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-5123c-a44d827')],
  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_01U74cJAFWDXFfJhuzmHcxpR', 'input': {'query': 'current weather in San Francisco'}, 'name': 'search', 'type': 'tool_use'}], additional_kwargs={}, response_metadata={'id': 'msg_015wmgzCtpTgaChveNLKJXr', '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_01U74cJAFWDXFfJhuzmHcxpR', 'type': 'tool_call'}], usage_metadata={'input_tokens': 358, 'output_tokens': 87, 'total_tokens': 445, 'input_token_details': {'ls': {}}}),
  ToolMessage(content="It's 60 degrees and foggy.", name='search', id='89ce0a44-7c2a-4644-b86c-b9dfade12a39', tool_call_id='toolu_01U74cJAFWDXFfJhuzmHcxpR'),
  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 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_01C8a4NFdH9Vmdqkraj55xMn', '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': {}})]

[2:checkpoint] State at the end of step 2:
{'messages': [HumanMessage(content='what is the weather in sf', additional_kwargs={}, response_metadata={}, id='35109bd3-e55c-4427-997e-5123c-a44d827')],
  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_01U74cJAFWDXFfJhuzmHcxpR', 'input': {'query': 'current weather in San Francisco'}, 'name': 'search', 'type': 'tool_use'}], additional_kwargs={}, response_metadata={'id': 'msg_015wmgzCtpTgaChveNLKJXr', '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_01U74cJAFWDXFfJhuzmHcxpR', 'type': 'tool_call'}], usage_metadata={'input_tokens': 358, 'output_tokens': 87, 'total_tokens': 445, 'input_token_details': {'ls': {}}}),
  ToolMessage(content="It's 60 degrees and foggy.", name='search', id='89ce0a44-7c2a-4644-b86c-b9dfade12a39', tool_call_id='toolu_01U74cJAFWDXFfJhuzmHcxpR'),
  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_01C8a4NFdH9Vmdqkraj55xMn', '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': {}})]
```



```
localhost:8888/notebooks/notebooks%2Fcommand.ipynb
jupyter command Last Checkpoint: 54 minutes ago
File Edit View Run Kernel Settings Help Trusted
JupyterLab Python 3 (ipykernel)
[1:checkpoint] State at the end of step ~1:
{'messages': [HumanMessage(content='what is the weather in sf', additional_kwargs={}, response_metadata={}, id='35109bd3-e55c-4427-997e-5123c-a44d827')]}
[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-5123c-a44d827')]}
[1:writes] Finished step 1 with writes to 0 channels:

[1:checkpoint] State at the end of step 1:
{'messages': [HumanMessage(content='what is the weather in sf', additional_kwargs={}, response_metadata={}, id='35109bd3-e55c-4427-997e-5123c-a44d827')]}
[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-5123c-a44d827')]}
[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-5123c-a44d827')],
  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_01U74cJAFWDXFfJhuzmHcxpR', 'input': {'query': 'current weather in San Francisco'}, 'name': 'search', 'type': 'tool_use'}], additional_kwargs={}, response_metadata={'id': 'msg_015wmgzCtpTgaChveNLKJXr', '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_01U74cJAFWDXFfJhuzmHcxpR', 'type': 'tool_call'}], usage_metadata={'input_tokens': 358, 'output_tokens': 87, 'total_tokens': 445, 'input_token_details': {'ls': {}}}),
  ToolMessage(content="It's 60 degrees and foggy.", name='search', id='89ce0a44-7c2a-4644-b86c-b9dfade12a39', tool_call_id='toolu_01U74cJAFWDXFfJhuzmHcxpR'),
  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_01C8a4NFdH9Vmdqkraj55xMn', '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': {}})]
[2:checkpoint] State at the end of step 2:
{'messages': [HumanMessage(content='what is the weather in sf', additional_kwargs={}, response_metadata={}, id='35109bd3-e55c-4427-997e-5123c-a44d827')],
  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_01U74cJAFWDXFfJhuzmHcxpR', 'input': {'query': 'current weather in San Francisco'}, 'name': 'search', 'type': 'tool_use'}], additional_kwargs={}, response_metadata={'id': 'msg_015wmgzCtpTgaChveNLKJXr', '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_01U74cJAFWDXFfJhuzmHcxpR', 'type': 'tool_call'}], usage_metadata={'input_tokens': 358, 'output_tokens': 87, 'total_tokens': 445, 'input_token_details': {'ls': {}}}),
  ToolMessage(content="It's 60 degrees and foggy.", name='search', id='89ce0a44-7c2a-4644-b86c-b9dfade12a39', tool_call_id='toolu_01U74cJAFWDXFfJhuzmHcxpR'),
  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_01C8a4NFdH9Vmdqkraj55xMn', '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': {}})]
```



smith.langchain.com/o/ebaf2eb-769b-4505-aca2-d11de10372a4/projects/pla7ab8704-8d03-4741-b017-67e1fb78eb19?column=VisibilityM...

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 Run Feedback Metadata

Input

HUMAN

what is the weather in sf

Rendered Output

```
1 {
2   "output": {
3     "graph": null,
4     "update": [],
5     "resume": null,
6     "goto": "weather_agent"
7   }
8 }
```

JSON



smith.langchain.com/o/ebba2eb-769b-4505-aca2-d11de10372a4/projects/p/a7da8704-8d03-4741-b017-67e1fb78eb19?columnVisibilityM...

Relaunch to update

weather_agent

Run Feedback Metadata

Run ID Trace 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

1 {

2 "query": "current weather in San Francisco"

3 }

JSON

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](#)

smith.langchain.com/o/ebba2eb-769b-4505-aca2-d11de10372a4/projects/p/a7da8704-8d03-4741-b017-67e1fb78eb19?columnVisibilityM...

Relaunch to update

weather_agent

Run Feedback Metadata

Run ID Trace 13:18

Input

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

1 {

2 "query": "current weather in San Francisco"

3 }

JSON

TOOL

search toolu_01UT4cJAFWdxFfJhuzmHcxpR

1 "It's 60 degrees and foggy."

JSON

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](#)