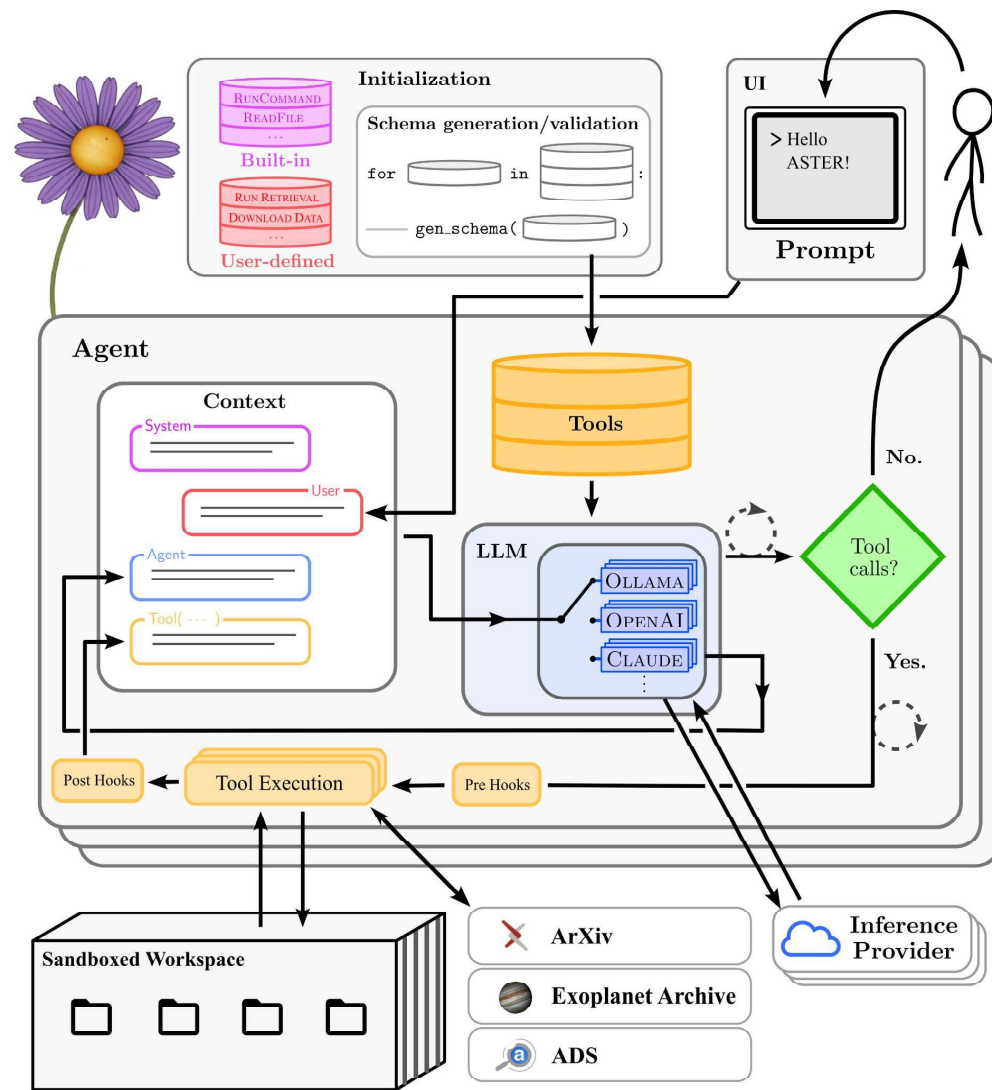


ASTER architecture





Orchestral

< 14 / (no max set) 15,570 / 1,047,576 tokens



User

Can you list me the tools available?

Agent

Certainly! Here are the tools available for use:

- 1 Run shell commands with persistent session state.
- 2 Write data to a file, creating or overwriting.
- 3 Read file contents with line numbers.
- 4 Edit a file by replacing exact string matches.
- 5 Search for regex patterns in file contents.
- 6 Search the web for information.
- 7 Read the current todo list for this conversation.
- 8 Update the todo list with tasks in markdown format.
- 9 Display images to the user.
- 10 Set the paths for TauREx opacity and CIA files.
- 11 Run a TauREx forward transmission spectrum model.
- 12 Run a TauREx forward emission spectrum model.
- 13 Run a TauREx atmospheric retrieval.
- 14 Generate a TauREx parameter (.par) file.
- 15 Get exoplanet parameters from NASA Exoplanet Archive.
- 16 Download transit spectra from NASA Exoplanet Archive.
- 17 Query NASA Exoplanet Archive by condition.
- 18 Prepare JWST proposal data for ASTER analysis.
- 19 Embed and cluster JWST proposals.
- 20 Predict JWST observation modes.
- 21 Generate SLURM sbatch script.
- 22 Upload and submit SLURM jobs.
- 23 Check SLURM job status.
- 24 Predict gas-phase chemical equilibrium mixing ratios (FastChem).
- 25 Search MAST for JWST observations.
- 26 List downloadable MAST products for a JWST observation id.
- 27 One-shot download of JWST products.
- 28 Cross-match JWST demographics search with Exoplanet Archive.
- 29 Aggregate JWST observations by groupings.
- 30 Download JWST products for a demographic per planet.

If you want details or want to perform any specific task with one of these tools, please let me know!

Type your message... (Enter to send, Shift+Enter for new line, Esc to interrupt)





Orchestral

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User

Can you make a basic transmission forward model for a generic hot jupiter?

— Agent

tool call:

```
settaurexpaths(opacity_path="/Users/epanek1/Documents/science/PhD_IAP/taurex_data/xsec",
cia_path="/Users/epanek1/Documents/science/PhD_IAP/taurex_data/cia_hitran")
```

response:

Paths set successfully!

tool call:

```
runtaurextransmissionmodel(star_radius="1", planet_radius="1", planet_mass="1",
planet_temp="1500", atm_min_pressure="0.001", atm_max_pressure="100000.0",
molecules="['H2O', 'CH4', 'CO2', 'CO', 'NH3']", molecular_abundances={},
filename="basic_hot_jupiter_forward_model")
```

response:

Error: Execution Error
- Reason: No active absorbing molecules
- Check tool implementation

It seems the forward model did not run because there were no active absorbing molecules specified correctly in the molecular abundances or the molecules list was not properly used.

Let me explicitly specify typical molecule abundances for a generic hot Jupiter and try again.

tool call:

```
runtaurextransmissionmodel(star_radius="1", planet_radius="1", planet_mass="1",
planet_temp="1500", atm_min_pressure="0.001", atm_max_pressure="100000.0",
molecules=[], molecular_abundances={'H2O': 0.01, 'CH4': 0.0001, 'CO2': 0.0001,
'CO': 0.0001, 'NH3': 1e-05}, filename="basic_hot_jupiter_forward_model")
```

response:

Taurex model run successfully with output file:
basic_hot_jupiter_forward_model_spectrum.png (wavelength and spectrum arrays also

Type your message... (Enter to send, Shift+Enter for new line, Esc to interrupt)

