

Requirement 20 Report - Fix the interactor or explain why it cannot be fixed

Explain what was broken with the interactor

```
22415.log
Traceback (most recent call last):
  File "/Library/Developer/CommandLineTools/Library/Frameworks/Python3.framework/Versions/3.9/lib/python3.9/runpy.py"
, line 197, in _run_module_as_main
    return _run_code(code, main_globals, None,
  File "/Library/Developer/CommandLineTools/Library/Frameworks/Python3.framework/Versions/3.9/lib/python3.9/runpy.py"
, line 87, in _run_code
    exec(code, run_globals)
  File "/Users/lincolnschick/Library/Python/3.9/lib/python/site-packages/minerl/interactor/__main__.py", line 79, in
<module>
    run_interactor(ip=opts.ip, port=opts.port)
  File "/Users/lincolnschick/Library/Python/3.9/lib/python/site-packages/minerl/interactor/__main__.py", line 55, in
run_interactor
    request_interactor(
  File "/Users/lincolnschick/Library/Python/3.9/lib/python/site-packages/minerl/interactor/__main__.py", line 23, in
request_interactor
    _MultiAgentEnv._TO_MOVE_hello(sock)
  File "/Users/lincolnschick/Library/Python/3.9/lib/python/site-packages/minerl/env/_multiagent.py", line 792, in _TO
_MOVE_hello
    instance.client_socket_send_message(("<MalmoEnv" + malmo_version + ">").encode())
AttributeError: 'socket' object has no attribute 'client_socket_send_message'
```

The interactor was using a method “client_socket_send_message” from Malmo, the underlying free/open-source Minecraft environment developed by Microsoft and used in MineRL, which was meant to be used with instances of the class MinecraftInstance in Malmo but was actually used on an instance of a socket class from the Python standard library. This method is needed to add a header to messages with Malmo. After this was fixed, the interactor loaded, but a new issue caused the agent to be frozen. This was caused by leaving insufficient time for XMLs to be processed, relaying information about the task/mission to the agent.

Explain how it was fixed OR why it cannot be fixed

The first bug was fixed by searching the repository for client_socket_send_message and lifting the underlying code from MinecraftInstance.client_socket_send_message and putting it in interactor.__main__.py.

The second issue was difficult to debug. I located where the program was hanging (in a socket.recv() call), but it was not very revealing. Eventually, I was searching through the MineRL GitHub issues, and I found that the interactor had been mostly fixed in a later commit; however, this commit was not incorporated to the PyPi package, and it was reversed in later versions of MineRL (which do not support the interactor). Hence we were not aware of it. The fix for the second issue was simply a call to sleep, but it was still insufficient for specific environments like MineRLObtainDiamond-v0, so I increased it to a 20 second sleep.

Since this involved changes in the minerl package and we may need to make more modifications in the future, I forked the repo to update the source code and added it as a submodule.

Provide the fixed code OR the broken code if it cannot be fixed

Full code at `src/minerl/env/_multiagent.py`

```
def reset(self) -> Any:
    ...
    self._send_mission(self.instances[0], agent_xmls[0], self._get_token(0,
ep_uid))
    # Allow extra processing time for newer MineRL environments
    time.sleep(20) # <- New code
    ...
    return self._peek_obs()
    ...
```

Full code at `src/minerl/interactor/__main__.py`

```
def request_interactor(instance, ip):
    sock = get_socket(instance)
    # _MultiAgentEnv._TO_MOVE_hello(sock) <- old code
    comms.send_message(sock,
                        ("<MalmoEnv" + malmo_version + ">").encode())

    comms.send_message(sock,
                        ("<Interact>" + ip + "</Interact>").encode())
    reply = comms.recv_message(sock)
    ok, = struct.unpack('!I', reply)
    if not ok:
        raise RuntimeError("Failed to start interactor")
    sock.close()
```

Show the interactor working OR the interactor failing (i.e., error message) if it cannot be fixed

See full video reports/requirement-20/fixer_interactor_demo.mp4

```
.8.3'. See: https://github.com/urllib3/urllib3/issues/3020
warnings.warn(
/Users/lincolnschick/Library/Python/3.9/lib/python/site-packages/gym/logger.py:34: UserWarning: WARN: Box bound precision lowered by casting to float32
warnings.warn(colorize("%s: %s" % ("WARN", msg % args), "yellow"))
/Users/lincolnschick/Library/Python/3.9/lib/python/site-packages/urllib3/__init__.py:34: NotOpenSSLWarning: urllib3 v2.0 only supports OpenSSL 1.1.1+, currently the 'ssl' module is compiled with 'LibreSSL 2.8.3'. See: https://github.com/urllib3/urllib3/issues/3020
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warnings.warn(colorize("%s: %s" % ("WARN", msg % args), "yellow"))
/Library/Developer/CommandLineTools/Library/Frameworks/Python3.framework/Versions/3.9/lib/python3.9/runpy.py:127: RuntimeWarning: 'minerl.utils.process_watcher' found in sys.modules after import of package 'minerl.utils', but prior to execution of 'minerl.utils.process_watcher'; this may result in unpredictable behaviour
warn(RuntimeWarning(msg))
2023-11-12 12:53:35.938 Python[3174:73487] ApplePersistenceIgnoreState: Existing state will not be touched. New state will be written to /var/folders/8h/2kdp1ps2wd06nkg1bjh9kzr0000gn/T/com.apple.python3.sas0, ?it/s]]

lincolnschick@Lincolns-MBP Github % python3 -m minerl.interactor b6b6
/Users/lincolnschick/Library/Python/3.9/lib/python/site-packages/urllib3/__init__.py:34: NotOpenSSLWarning: urllib3 v2.0 only supports OpenSSL 1.1.1+, currently the 'ssl' module is compiled with 'LibreSSL 2.8.3'. See: https://github.com/urllib3/urllib3/issues/3020
warnings.warn(
/Users/lincolnschick/Library/Python/3.9/lib/python/site-packages/gym/logger.py:34: UserWarning: WARN: Box bound precision lowered by casting to float32
warnings.warn(colorize("%s: %s" % ("WARN", msg % args), "yellow"))
Maimo[None:de0245, proc=EXISTING, addr=localhost:31415, locked=True]
lincolnschick@Lincolns-MBP Github %
```

