

# About JADE and Code Migration

Fernando G. Tinetti

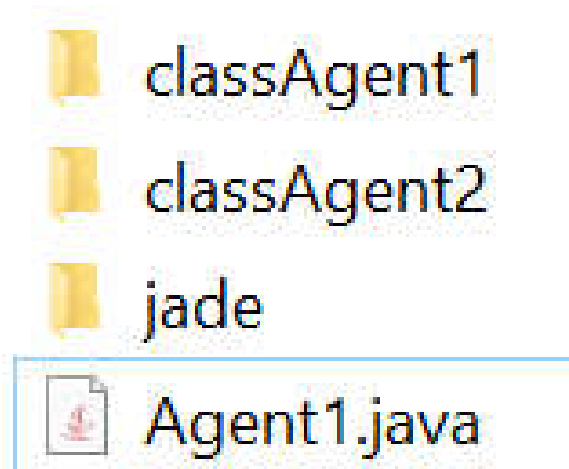
2025

Video at <https://youtu.be/7Y6ayOg1R6E>



# Directories/Folders and File/s

Starting with  
(classAgent2 not used  
in this sequence)



# Directories/Folders and File/s

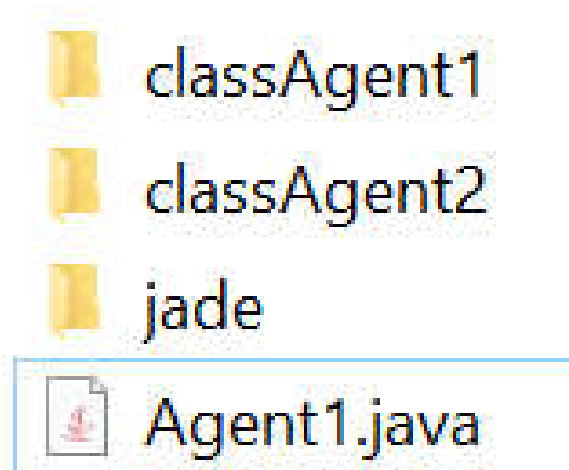
Agent1.java Source Code:

```
>more .\Agent1.java
import jade.core.*;

public class Agent1 extends Agent
{
    // Run once at creation
    public void setup()
    {
        Location location = here();
        System.out.println("\n\nHi, agent with local name " + getLocalName());
        System.out.println("And full name... " + getName());
        System.out.println("At location " + location.getID() + "\n\n");
    }
}
```



# Directories/Folders and File/s



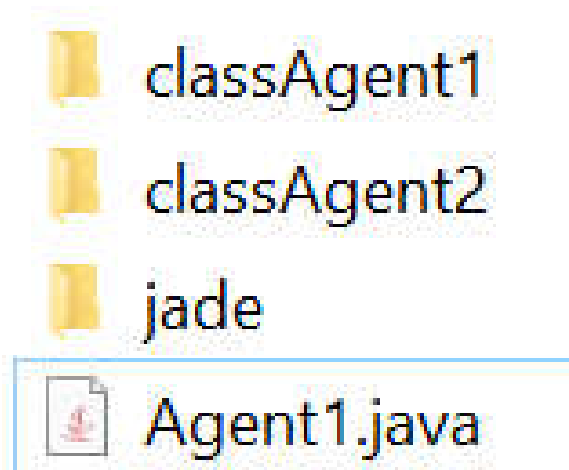
Compile:

```
>javac -cp jade\4.6.0\jade\lib\jade.jar -d classAgent1 Agent1.java
```



# Directories/Folders and File/s

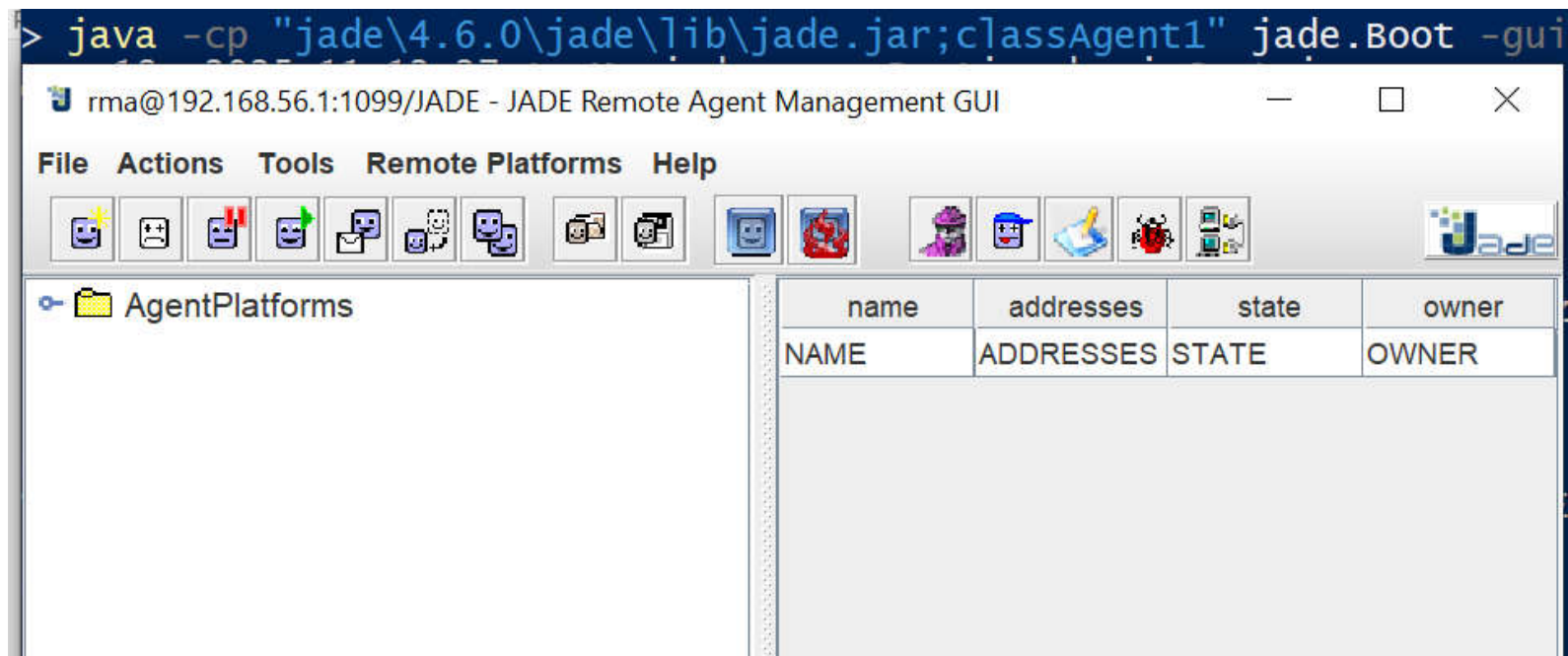
**.class generated in the corresponding directory**



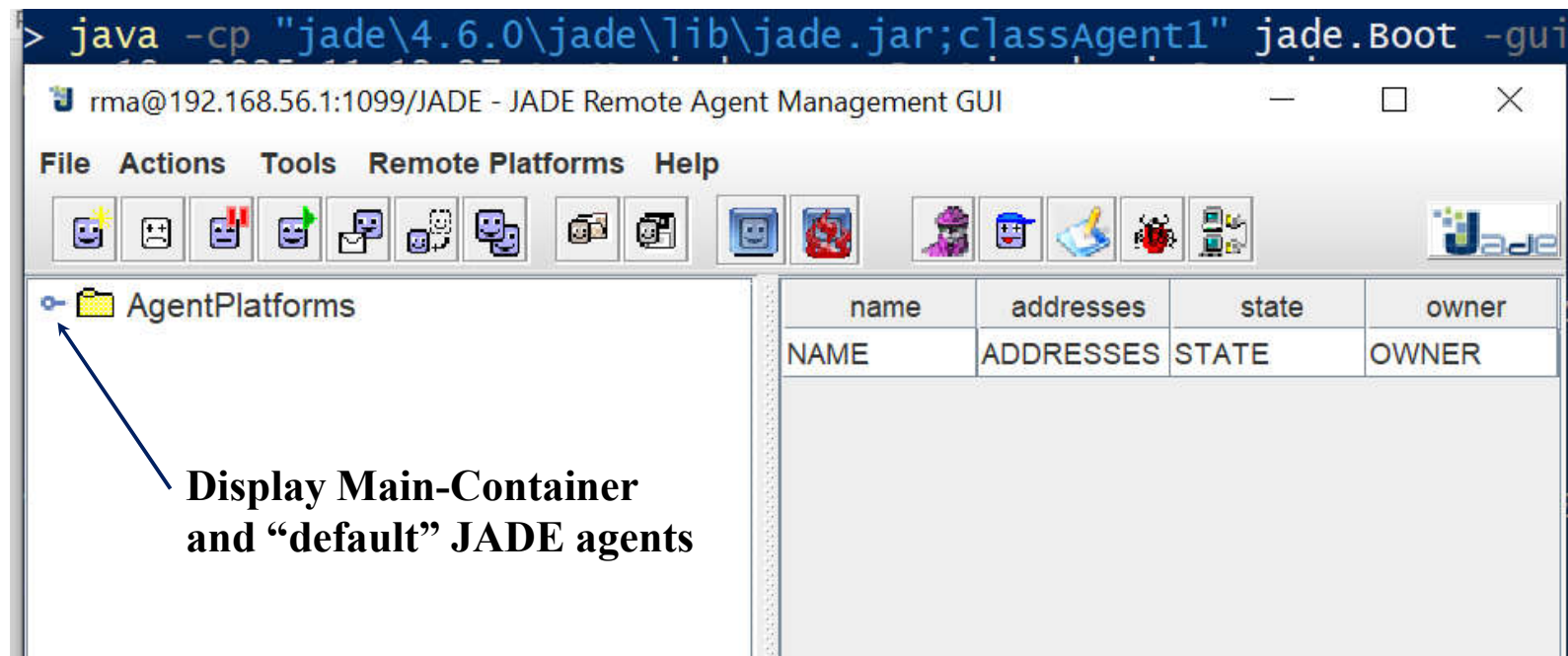
```
>dir .\classAgent1\
Dir \classAgent1
Mode Length Name
----
-a---- 1125 Agent1.class
```



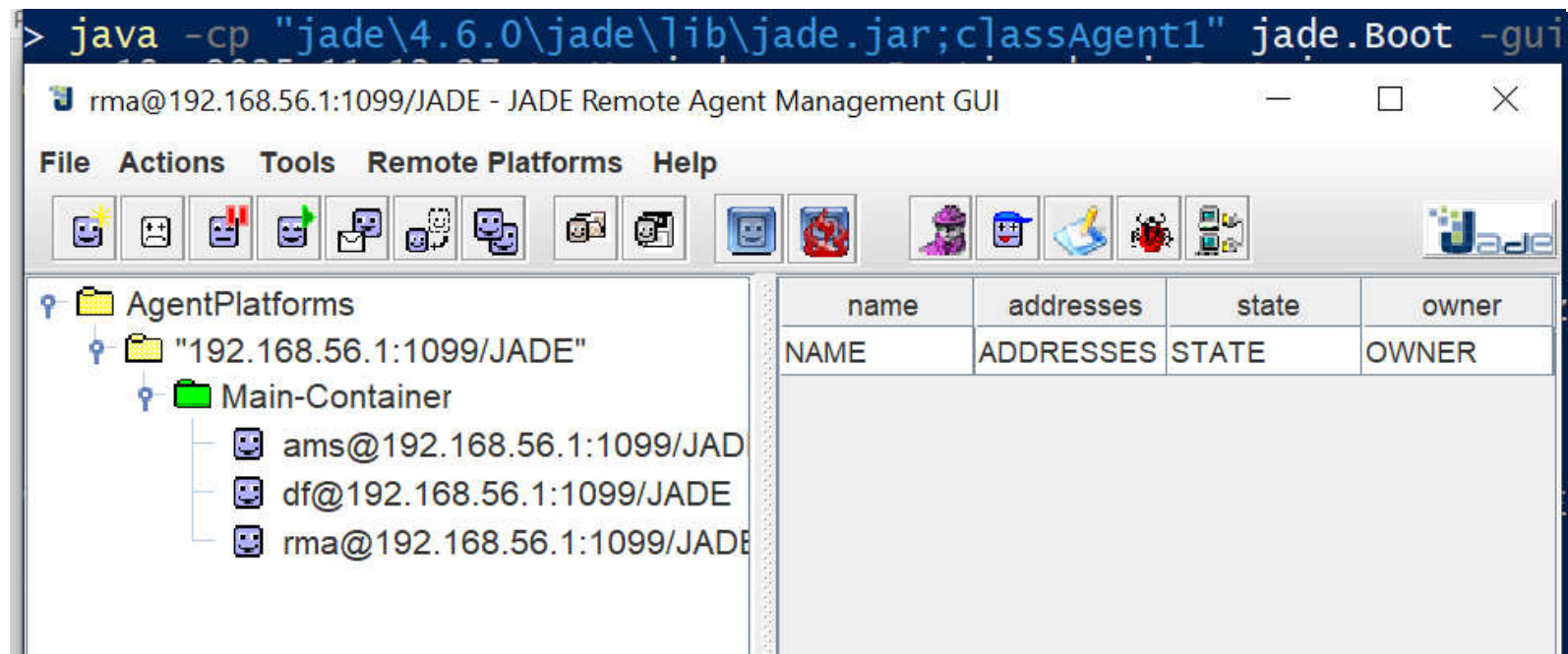
# Start JADE Environment and Agent



# Start JADE Environment and Agent

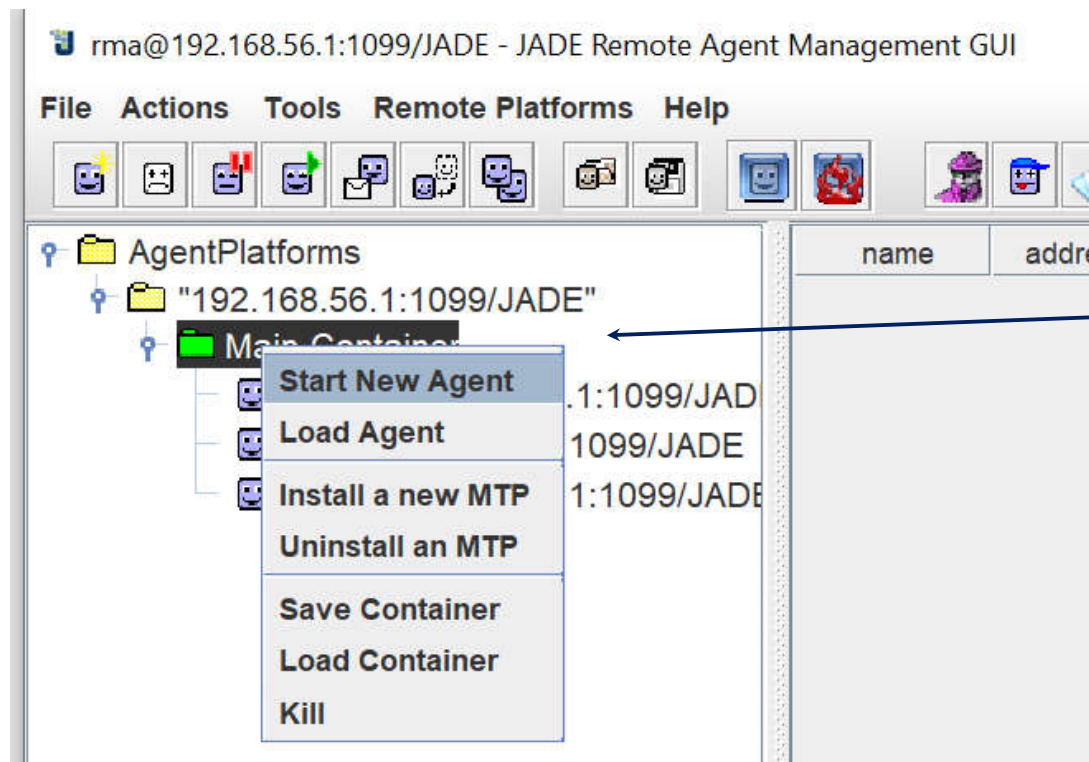


# Start JADE Environment and Agent





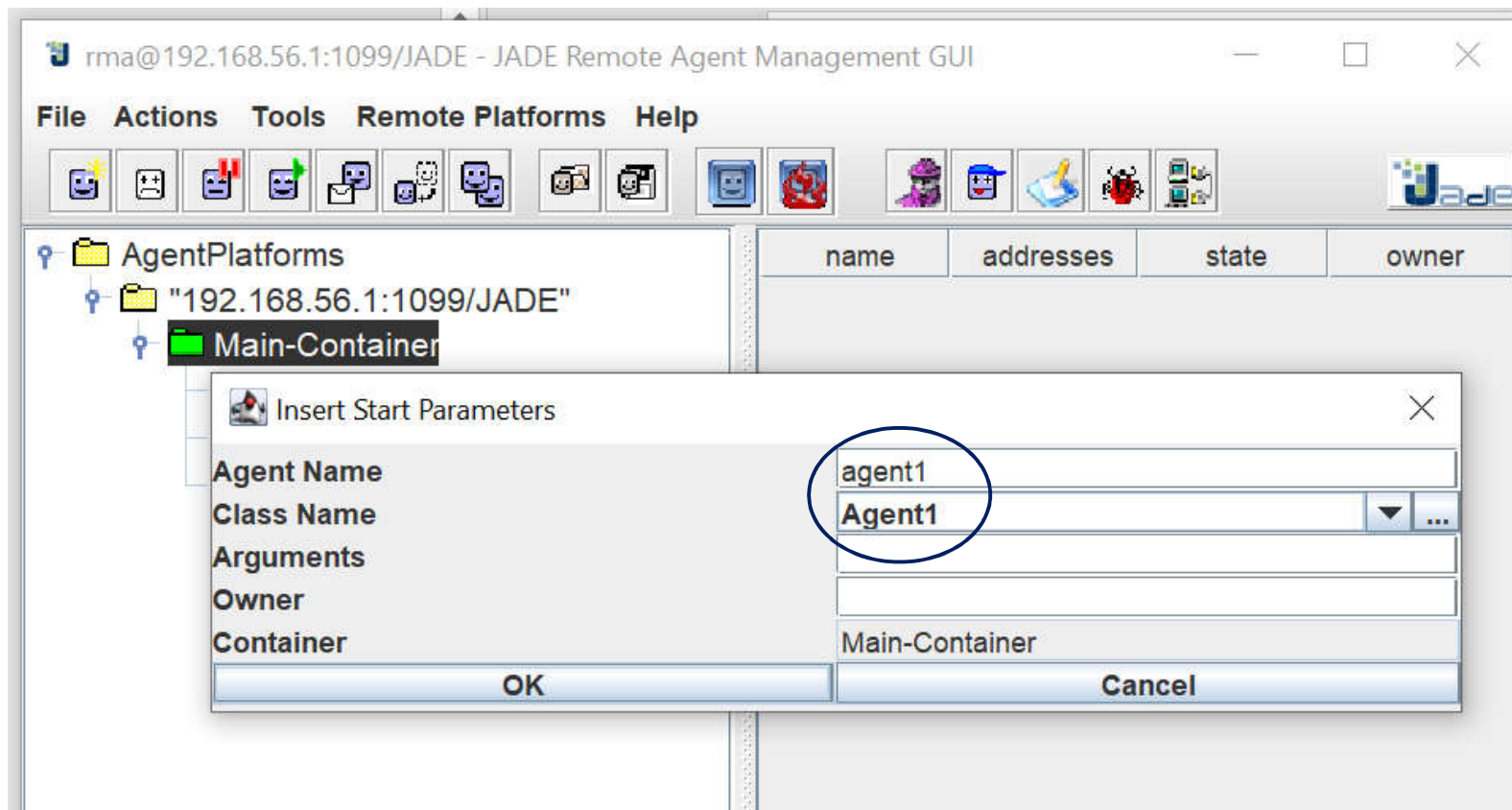
## Start JADE Environment and Agent



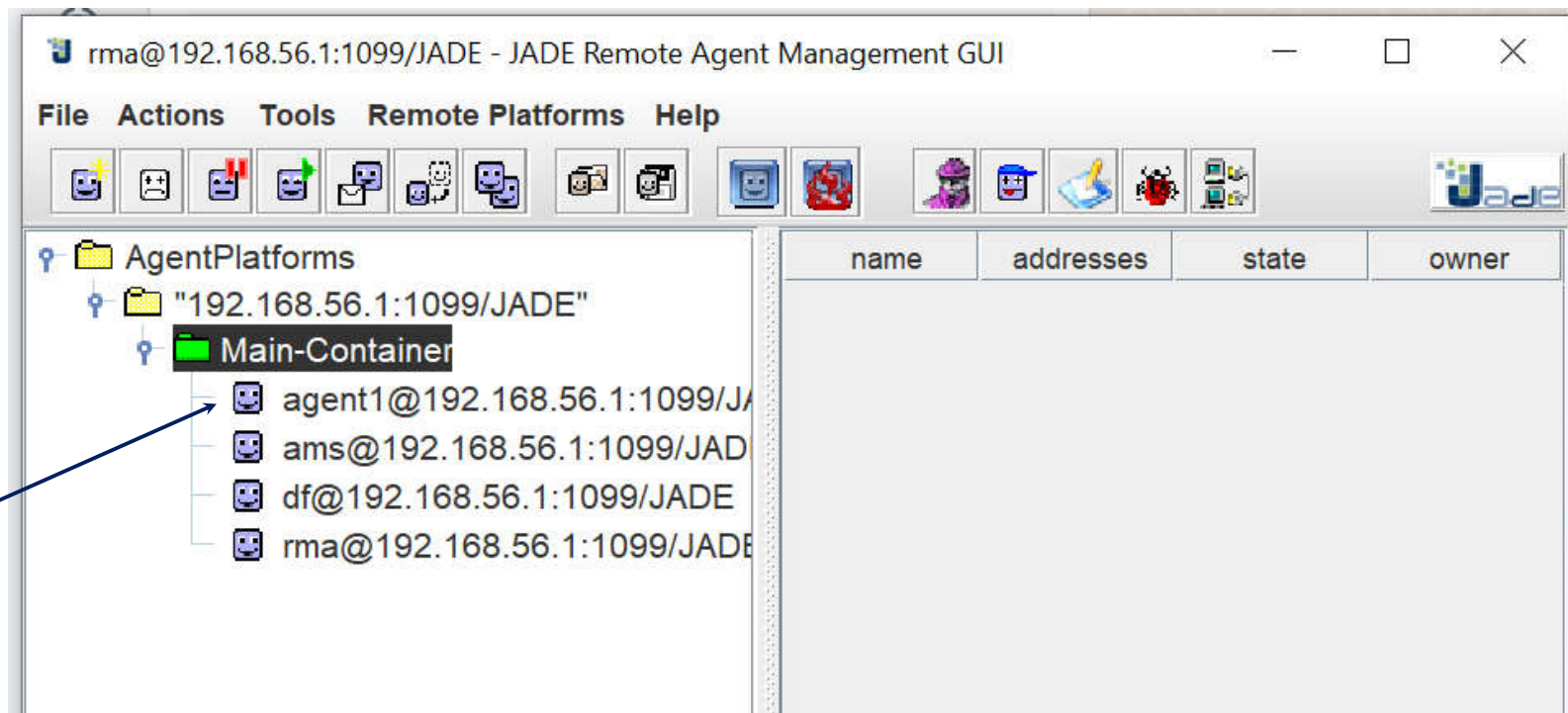
- Mouse right button



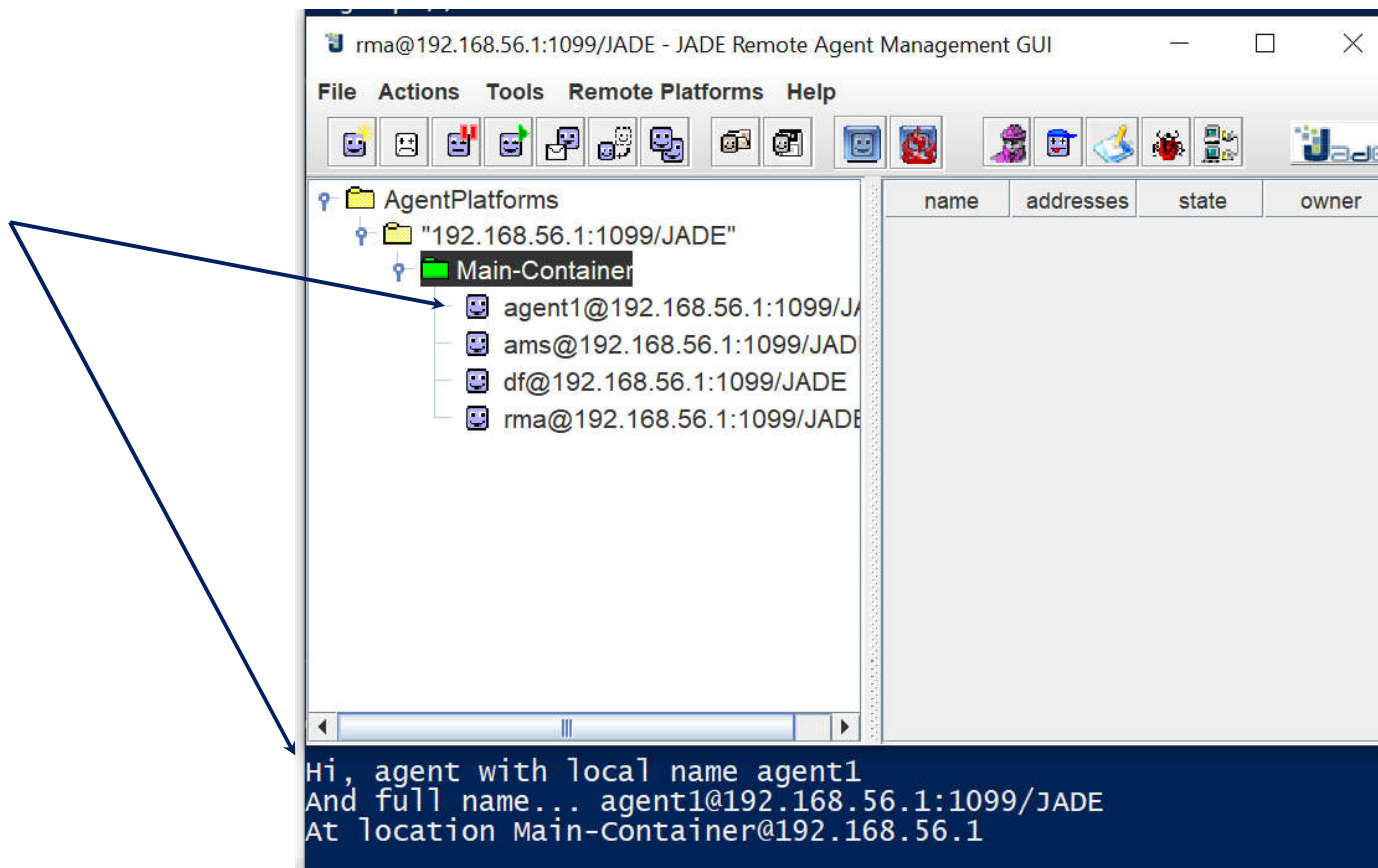
# Start JADE Environment and Agent



# Start JADE Environment and Agent



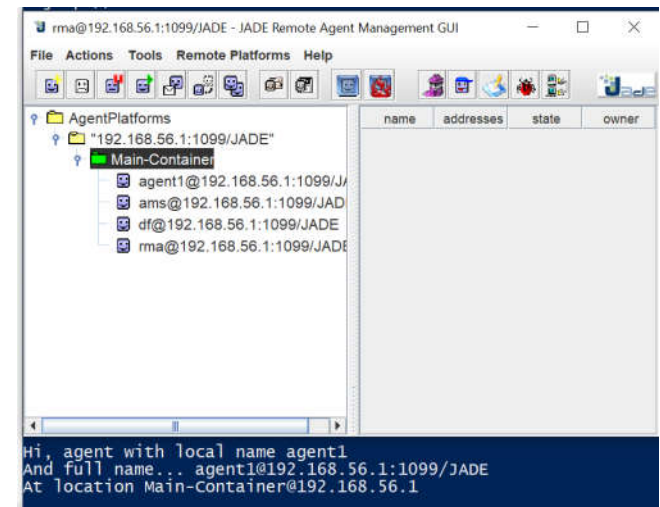
# Start JADE Environment and Agent



# Start JADE Environment and Agent

Note that the Java environment (JVM):

- Starts JADE with gui according to
- Finds the agent class using



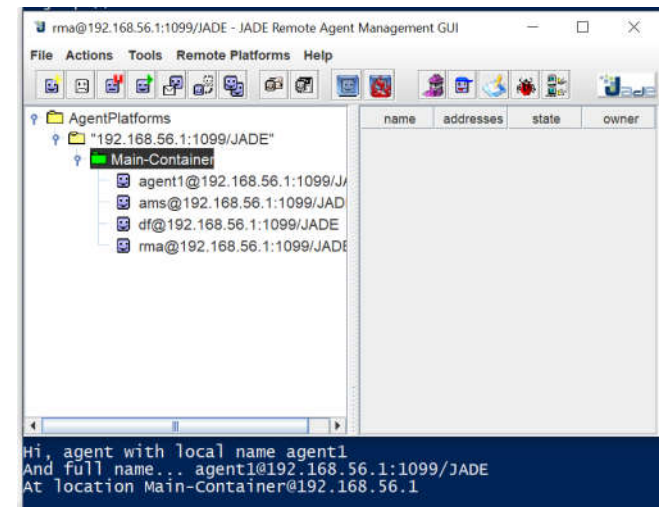
```
> java -cp "jade\4.6.0\jade\lib\jade.jar;classAgent1" jade.Boot -gui
```



# Start JADE Environment and Agent

Note that the Java environment (JVM):

- Starts JADE with gui according to
- Finds the agent class using



```
> java -cp "jade\4.6.0\jade\lib\jade.jar;classAgent1" jade.Boot -gui
```



# Add Container to the Platform

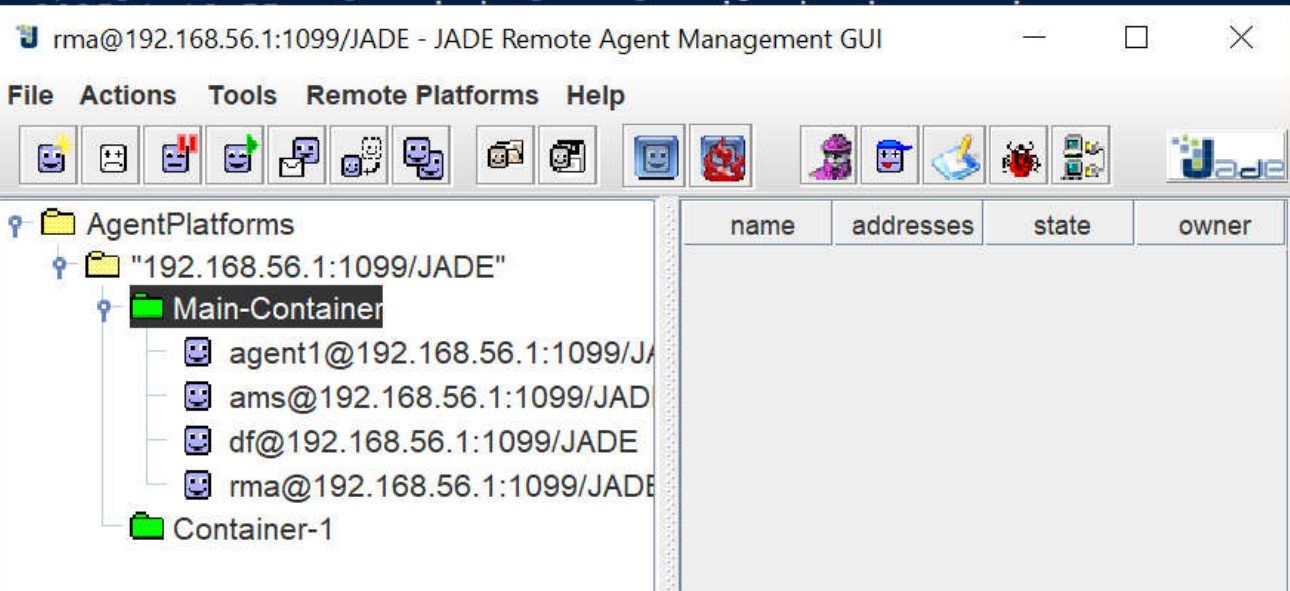
-Simulates another distributed system site/computer (another JVM, actually, in the same computer)

→ `>java -cp "jade\4.6.0\jade\lib\jade.jar" jade.Boot -container -host localhost`

mar 18  
INFO:  
Th  
do  
at

mar 18  
INFO:  
- jicp

mar 18  
INFO:  
mar 18  
INFO:  
mar 18  
INFO:  
mar 18  
INFO:



The screenshot shows the JADE Remote Agent Management GUI. The title bar reads "rma@192.168.56.1:1099/JADE - JADE Remote Agent Management GUI". The menu bar includes "File", "Actions", "Tools", "Remote Platforms", and "Help". The toolbar contains various icons for agent management. The left pane shows a tree view of the AgentPlatforms:

- AgentPlatforms
  - "192.168.56.1:1099/JADE"
    - Main-Container
      - agent1@192.168.56.1:1099/JA
      - ams@192.168.56.1:1099/JAD
      - df@192.168.56.1:1099/JADE
      - rma@192.168.56.1:1099/JADE
    - Container-1

The right pane shows a table with the following columns: name, addresses, state, and owner.

name	addresses	state	owner
------	-----------	-------	-------





# Add Container to the Platform

-Simulates another distributed system site/computer (another JVM, actually, in the same computer)

The screenshot shows a terminal window on the left and the JADE Remote Agent Management GUI on the right. The terminal displays the command `>java -cp "jade\4.6.0\jade\lib\jade.jar" jade.Boot -container -host localhost` and subsequent log messages. The GUI window, titled "rma@192.168.56.1:1099/JADE - JADE Remote Agent Management GUI", features a menu bar (File, Actions, Tools, Remote Platforms, Help) and a toolbar. The main area is divided into a tree view on the left and a table on the right. The tree view shows a hierarchy: "AgentPlatforms" > "192.168.56.1:1099/JADE" > "Main-Container" (highlighted with a green box). Below "Main-Container" are four agent entries: "agent1@192.168.56.1:1099/JA", "ams@192.168.56.1:1099/JAD", "df@192.168.56.1:1099/JADE", and "rma@192.168.56.1:1099/JADE". Below the tree is a "Container-1" entry. The table on the right has columns for "name", "addresses", "state", and "owner".

```
>java -cp "jade\4.6.0\jade\lib\jade.jar" jade.Boot -container -host localhost
mar 18
INFO:
Th
do
at
-----
mar 18
INFO:
- jicp
mar 18
INFO:
mar 18
INFO:
mar 18
INFO:
mar 18
INFO:
mar 18
```

AgentPlatforms

- "192.168.56.1:1099/JADE"
  - Main-Container
    - agent1@192.168.56.1:1099/JA
    - ams@192.168.56.1:1099/JAD
    - df@192.168.56.1:1099/JADE
    - rma@192.168.56.1:1099/JADE
  - Container-1

name	addresses	state	owner
------	-----------	-------	-------





# Add Container to the Platform

-Simulates another distributed system site/computer (another JVM, actually, in the same computer)

```
>java -cp "jade\4.6.0\jade\lib\jade.jar" jade.Boot -container -host localhost
```

JADE Environment



INFO:  
mar 18  
INFO:  
mar 18

rma@192.168.56.1:1099/JADE  
Container-1



# Add Container to the Platform

-Simulates another distributed system site/computer (another JVM, actually, in the same computer)

```
>java -cp "jade\4.6.0\jade\lib\jade.jar" jade.Boot -container -host localhost
```

JADE Environment

JADE Container to be added to a platform with an existing Main-Container

INFO:  
mar 18  
INFO:  
mar 18

rma@192.168.56.1:1099/JADE  
Container-1



# Add Container to the Platform

-Simulates another distributed system site/computer (another JVM, actually, in the same computer)

```
>java -cp "jade\4.6.0\jade\lib\jade.jar" jade.Boot -container -host localhost
```

JADE Environment

JADE Container to be added to a platform with an existing Main-Container

Location at which the JADE Platform Main-Container is currently running

INFO:  
mar 18  
INFO:  
mar 18

rma@192.168.56.1:1099/JADE  
Container-1



# Add Container to the Platform

-Simulates another distributed system site/computer (another JVM, actually, in the same computer)

```
>java -cp "jade\4.6.0\jade\lib\jade.jar" jade.Boot -container -host localhost
```

JADE Environment

JADE Container to be added to a platform with an existing Main-Container

Location at which the JADE Platform Main-Container is currently running

The new container in the JADE platform is named "Container-1"

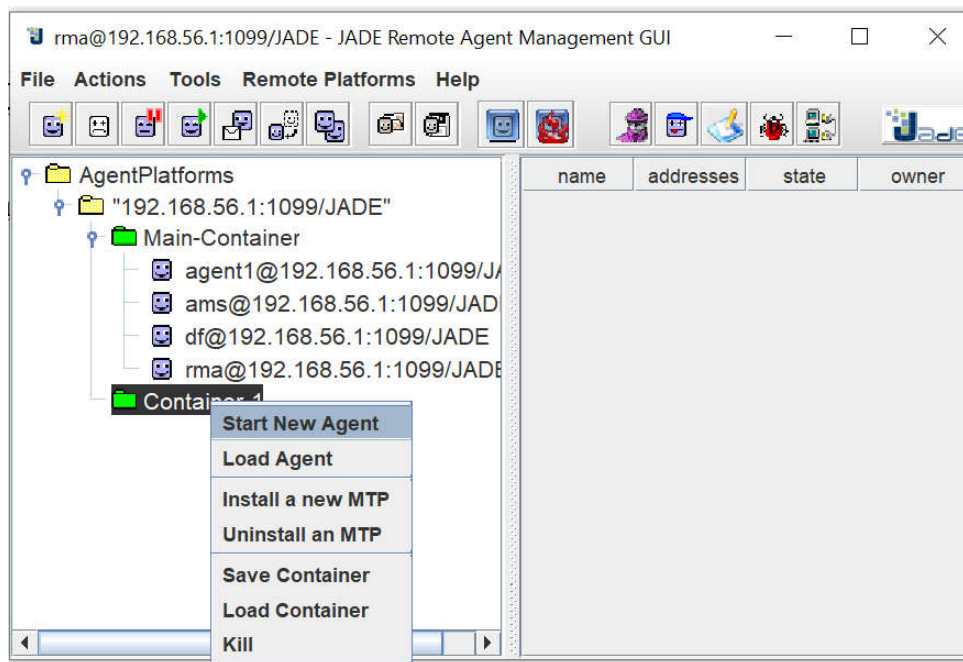
INFO:  
mar 18  
INFO:  
mar 18

rma@192.168.56.1:1099/JADE  
Container-1



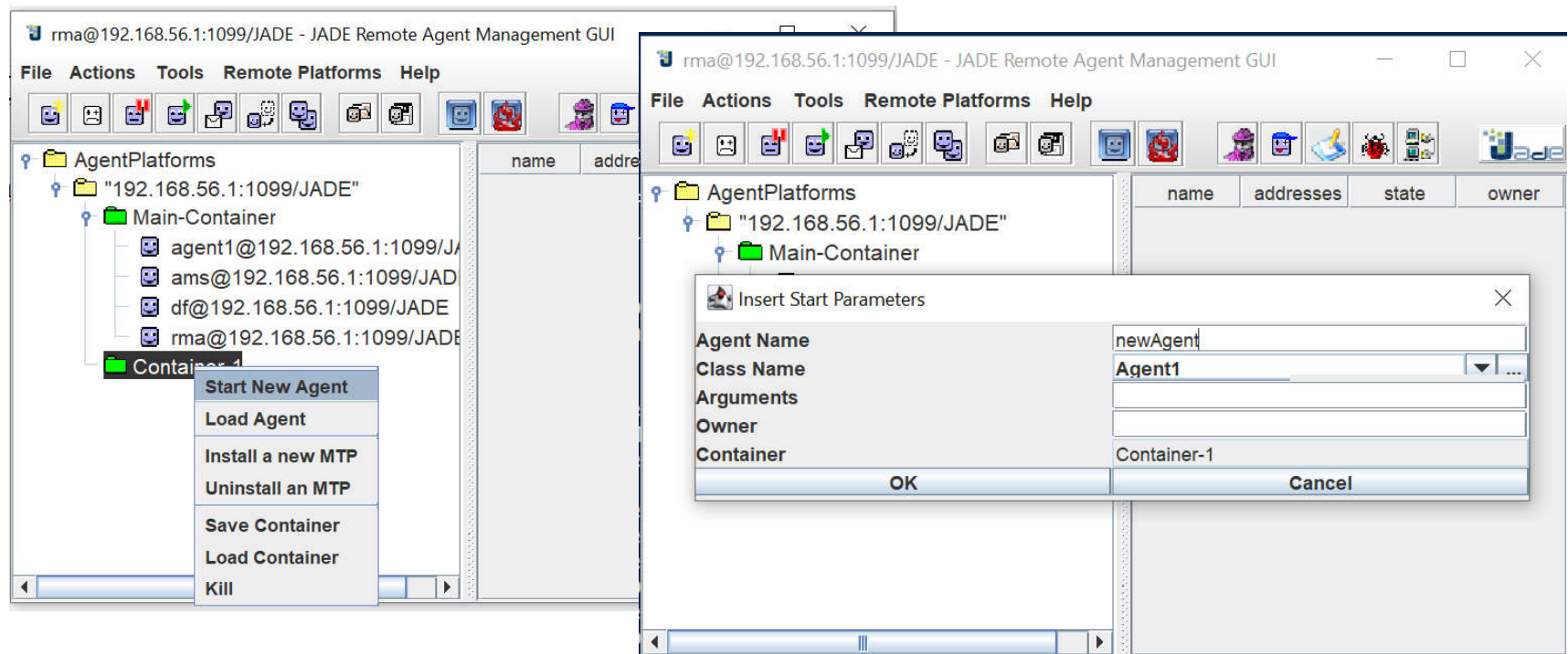
# Add Container to the Platform

-Try to create an agent in the new container:



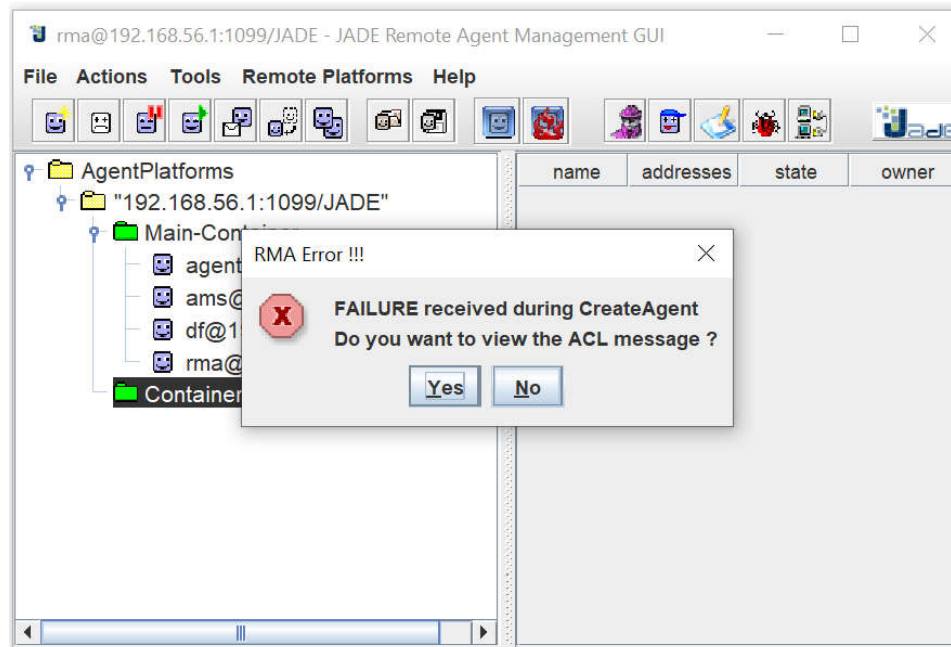
# Add Container to the Platform

-Try to create an agent in the new container:



# Add Container to the Platform

-Try to create an agent in the new container:

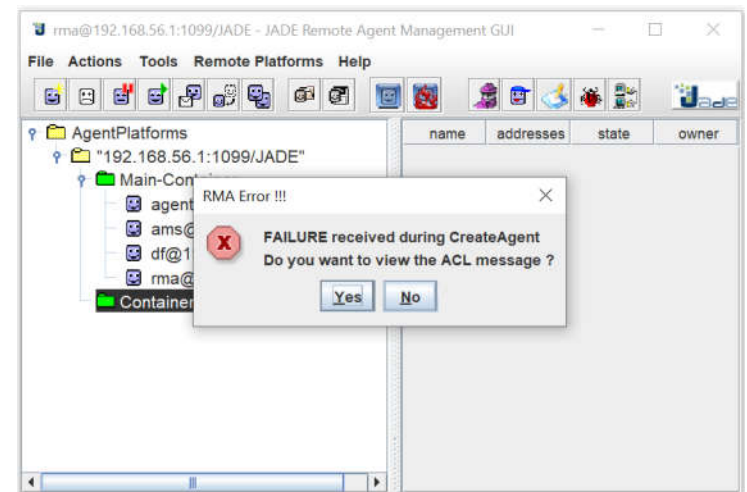


# Add Container to the Platform

-Try to create an agent in the new container:  
The class Agent1 (file Agent1.class) is not found, the JVM does not have access to the class file (only the JADE classes and packages are available):

```
>java -cp "jade\4.6.0\jade\lib\jade.jar"
```

```
WARNING: Error serving H-Command jade.core.management.AgentManagement/1:  
jade.core.IMTPEXception: Class Agent1 for agent ( agent-identifier :name  
newAgent@192.168.56.1:1099/JADE ) not found - Caused by: Agent1
```





# Agent Migration

- An Agent1 agent cannot be created at Container-1
  - > The JVM running the code related to Container-1 does not know/is not able to handle Agent1 objects (so far)

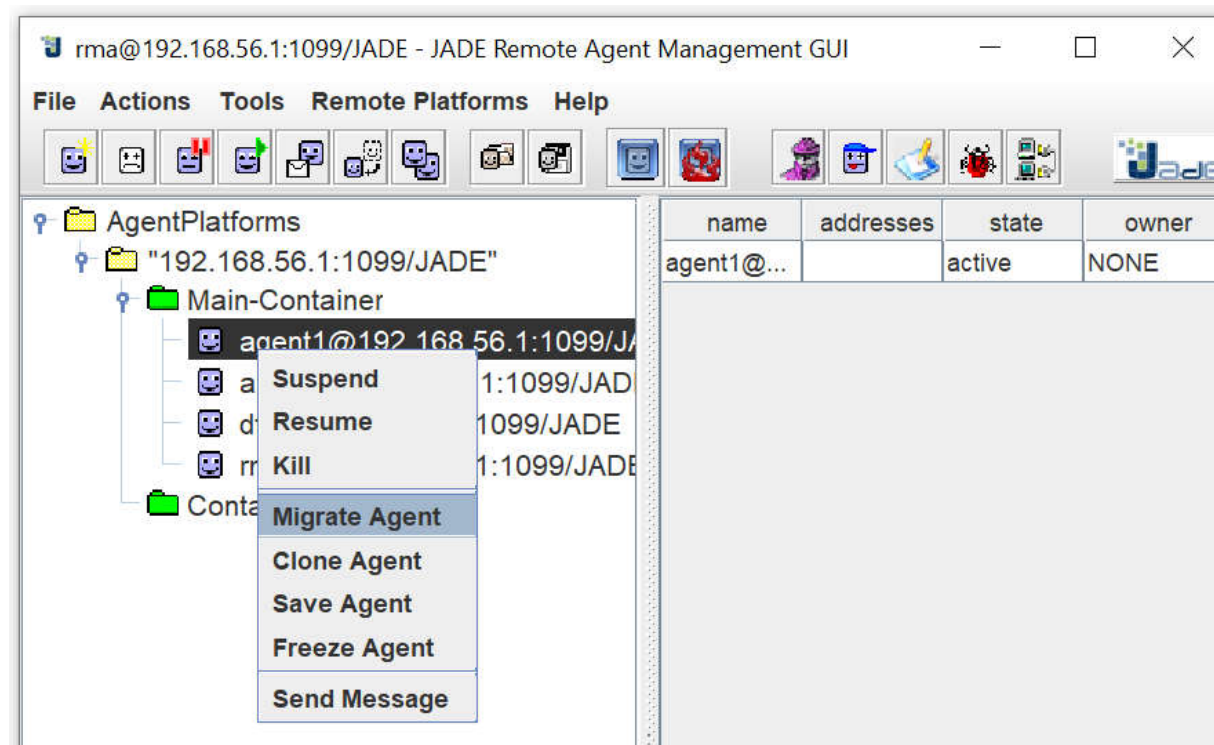


# Agent Migration

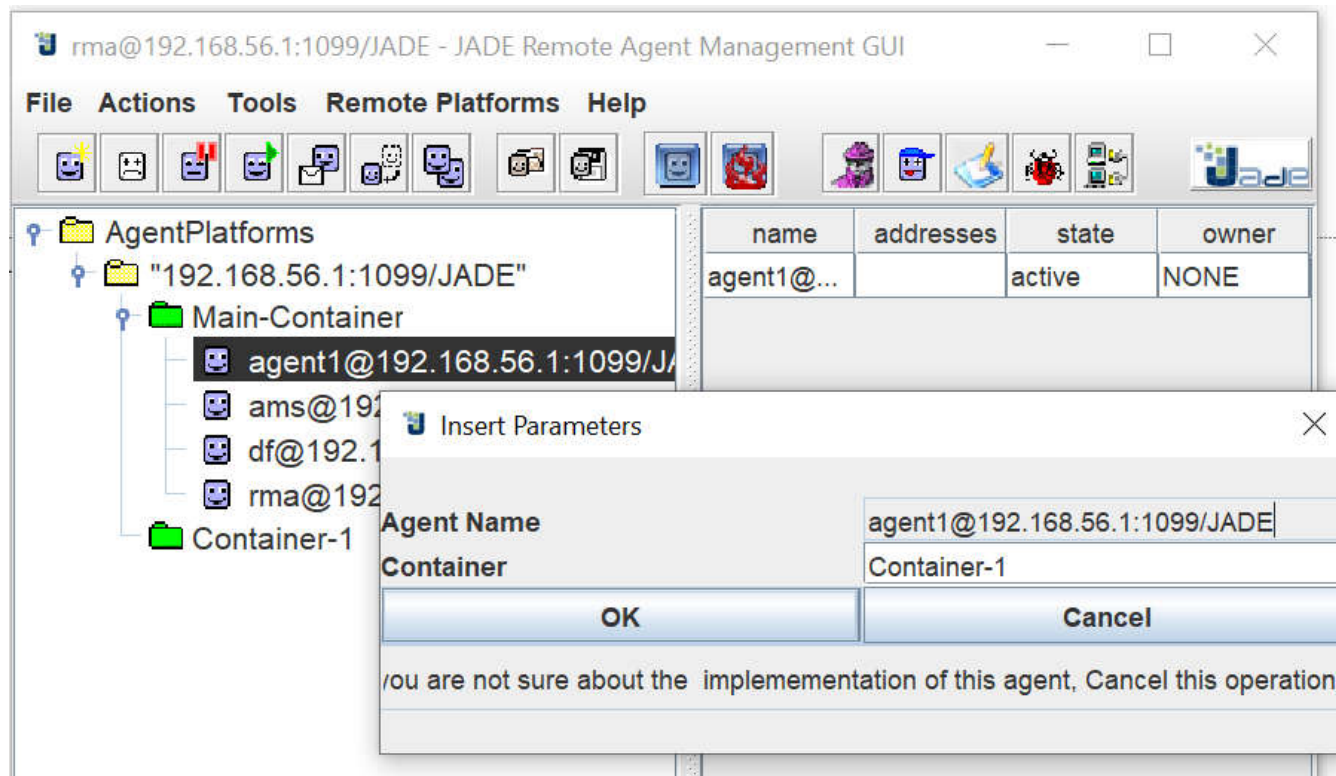
- An Agent1 agent cannot be created at Container-1
  - > The JVM running the code related to Container-1 does not know/is not able to handle Agent1 objects (so far)
- Since JADE is capable of migrating agents, it is expected that agent1, running in the Main-Container, can be migrated to Container-1
  - > Thus, the JVM running the code related to Container-1 will be able to handle Agent1 objects, the Agent1 class code is “migrated”



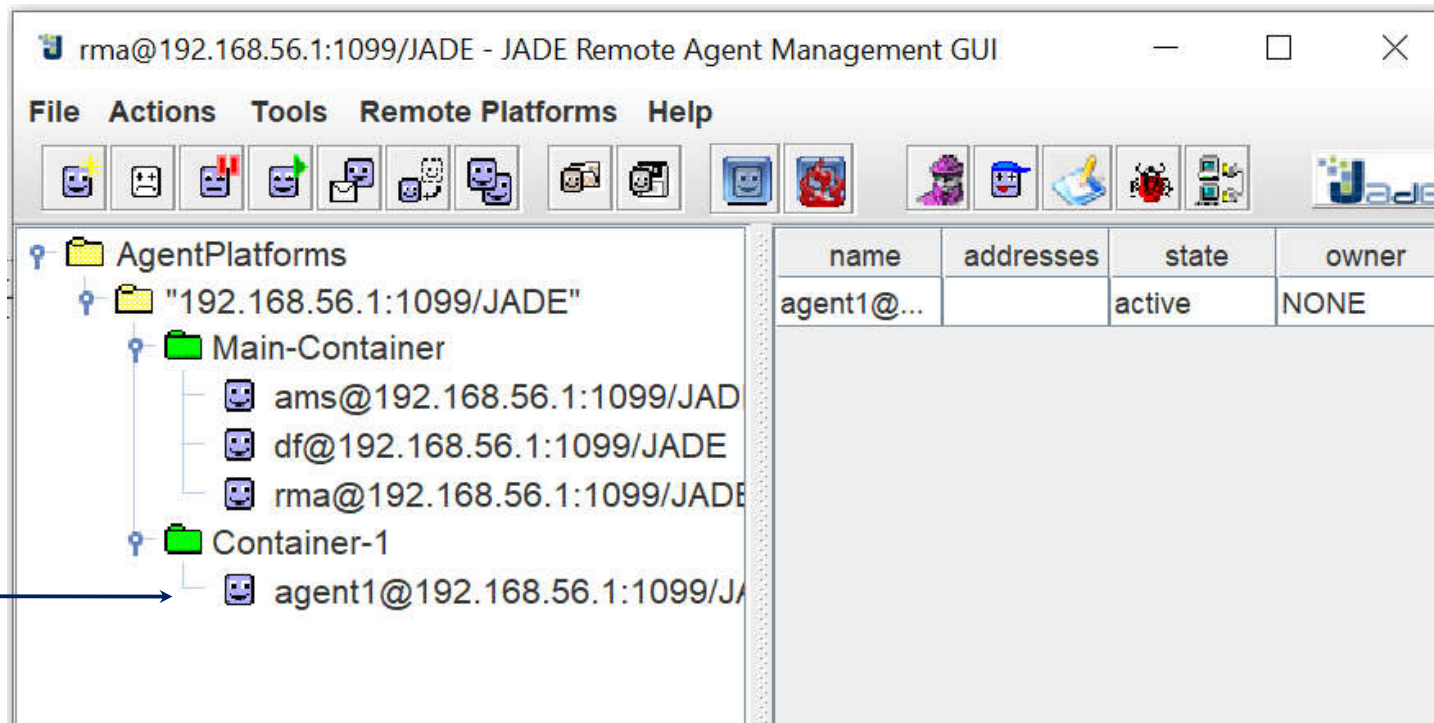
# Agent Migration



# Agent Migration



# Agent Migration



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      - rma@192.168.56.1:1099/JADE
    - Container-1
      - agent1@192.168.56.1:1099/JADE

A blue arrow points to the "agent1@192.168.56.1:1099/JADE" agent in the Container-1. The right pane displays a table with the following data:

name	addresses	state	owner
agent1@...		active	NONE



# Agent Migration

-agent1 is no longer running at Main-Container

-agent1 is running at Container-1 ==>

> The JVM running the code related to Container-1 is now able to handle Agent1 objects  $\therefore$  in some way has received the .class information/file

