Botservice Operation Testing Manual for field application engineers

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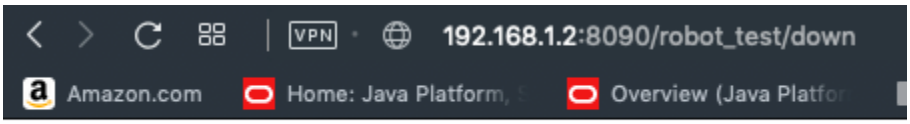
The followings are the instructions for field application engineers to test and verify field conditions through urls, including robots, chargers, connection, etc. In this section, we use IP address: 192.168.1.2, port number: 8090 and robot id 9 as pseudo parameters. Thus, these parameters should be modified based on field settings.

1. Individual robot function testing(please ensure that no task is assigned to the robot for testing)
    a. Testing plate up and down

http://192.168.1.2:8090/robot_test/down?id=9

http://192.168.1.2:8090/robot_test/up?id=9




```
return from robot:fc 0d 00 00 00 09 01 00 ac 00 4d 96 5a
```

b.Testing a robot by moving or rotating it:

http://192.168.1.2:8090/robot_test/move?id=9&x=1000&y=2000&a=0&p=0

where (x, y) is target location (unit: mm), a = AGV angle, p = plate angle

c. Get last 20 messages received and sent by a robot:

http://192.168.1.2:8090/robot_test/talk?id=9

```
botserver sent to bot 9 messages:
Thu Sep 26 17:35:46 PDT 2019: fc 1e 00 00 00 00 01 04 75 01 01 04 75 00 00 23 28 00 00 2e e0 00 b4 00 00 00 01 fa 84 5a
Thu Sep 26 17:35:46 PDT 2019: fc 0c 00 00 00 00 02 00 00 fa 61 5a
Thu Sep 26 17:35:46 PDT 2019: fc 1e 00 00 00 00 01 04 76 01 01 04 76 00 00 23 28 00 00 2e e0 00 b4 00 00 00 01 fd c1 5a
Thu Sep 26 17:35:46 PDT 2019: fc 0c 00 00 00 00 02 00 00 fa 61 5a
Thu Sep 26 17:35:46 PDT 2019: fc 1e 00 00 00 00 01 04 77 01 01 04 77 00 00 23 28 00 00 2e e0 00 b4 00 00 00 01 01 3d 5a
Thu Sep 26 17:35:46 PDT 2019: fc 0c 00 00 00 00 02 00 00 fa 61 5a
Thu Sep 26 17:35:46 PDT 2019: fc 1e 00 00 00 00 01 04 78 01 01 04 78 00 00 23 28 00 00 2e e0 00 b4 00 00 00 01 19 2c 5a
Thu Sep 26 17:35:46 PDT 2019: fc 0c 00 00 00 00 02 00 00 fa 61 5a
Thu Sep 26 17:35:46 PDT 2019: fc 1e 00 00 00 00 01 04 79 01 01 04 79 00 00 23 28 00 00 2e e0 00 b4 00 00 00 01 e5 d0 5a
Thu Sep 26 17:35:47 PDT 2019: fc 0c 00 00 00 00 02 00 00 fa 61 5a
Thu Sep 26 17:35:47 PDT 2019: fc 1e 00 00 00 00 01 04 7a 01 01 04 7a 00 00 23 28 00 00 2e e0 00 b4 00 00 00 01 e2 95 5a
Thu Sep 26 17:35:47 PDT 2019: fc 0c 00 00 00 00 02 00 00 fa 61 5a
Thu Sep 26 17:35:47 PDT 2019: fc 1e 00 00 00 00 01 04 7b 01 01 04 7b 00 00 23 28 00 00 2e e0 00 b4 00 00 00 01 1e 69 5a
Thu Sep 26 17:35:47 PDT 2019: fc 0c 00 00 00 00 02 00 00 fa 61 5a
Thu Sep 26 17:35:47 PDT 2019: fc 1e 00 00 00 00 01 04 7c 01 01 04 7c 00 00 23 28 00 00 2e e0 00 b4 00 00 00 01 ec 1f 5a
Thu Sep 26 17:35:47 PDT 2019: fc 0c 00 00 00 00 02 00 00 fa 61 5a
Thu Sep 26 17:35:47 PDT 2019: fc 1e 00 00 00 00 01 04 7d 01 01 04 7d 00 00 23 28 00 00 2e e0 00 b4 00 00 00 01 10 e3 5a
Thu Sep 26 17:35:47 PDT 2019: fc 0c 00 00 00 00 02 00 00 fa 61 5a
Thu Sep 26 17:35:47 PDT 2019: fc 1e 00 00 00 00 01 04 7e 01 01 04 7e 00 00 23 28 00 00 2e e0 00 b4 00 00 00 01 17 a6 5a
Thu Sep 26 17:36:40 PDT 2019: fc 0c 00 00 00 00 02 00 00 fa 61 5a
botserver received from bot 9 messages:
Thu Sep 26 17:36:38 PDT 2019: fc 2d 00 00 00 09 02 00 00 01 05 00 00 23 2c 00 00 2e d7 00 b3 01 67 00 00 00 00 00 00 00 00 00 00 cd 78 06 a4 00 02 00 00 72 c6 5a
Thu Sep 26 17:36:38 PDT 2019: fc 2d 00 00 00 09 02 00 00 01 05 00 00 23 2e 00 00 2e d7 00 b3 01 67 00 00 00 00 00 00 00 00 00 00 cd 78 06 a4 00 02 00 00 77 86 5a
Thu Sep 26 17:36:38 PDT 2019: fc 2d 00 00 00 09 02 00 00 01 05 00 00 23 2b 00 00 2e d7 00 b3 01 67 00 00 00 00 00 00 00 00 01 00 00 cd 78 06 a4 00 02 00 00 7a 7a 5a
Thu Sep 26 17:36:38 PDT 2019: fc 2d 00 00 00 09 02 00 00 01 05 00 00 23 2c 00 00 2e d7 00 b3 01 67 00 00 00 00 00 00 00 00 00 00 cd 78 06 a4 00 02 00 00 72 c6 5a
Thu Sep 26 17:36:38 PDT 2019: fc 2d 00 00 00 09 02 00 00 01 05 00 00 23 2e 00 00 2e d7 00 b3 01 67 00 00 00 00 00 00 00 00 00 00 cd 78 06 a4 00 02 00 00 77 86 5a
Thu Sep 26 17:36:38 PDT 2019: fc 2d 00 00 00 09 02 00 00 01 05 00 00 23 2e 00 00 2e d7 00 b3 01 67 00 00 00 00 00 00 00 00 01 00 00 cd 78 06 a4 00 02 00 00 73 7a 5a
Thu Sep 26 17:36:39 PDT 2019: fc 2d 00 00 00 09 02 00 00 01 05 00 00 23 2e 00 00 2e d7 00 b3 01 67 00 00 00 00 00 00 ff ff 00 00 cd 78 06 a4 00 02 00 00 13 84 5a
Thu Sep 26 17:36:39 PDT 2019: fc 2d 00 00 00 09 02 00 00 01 05 00 00 23 2e 00 00 2e d7 00 b3 01 67 00 00 00 00 00 00 00 00 00 00 cd 78 06 a4 00 02 00 00 77 86 5a
Thu Sep 26 17:36:39 PDT 2019: fc 2d 00 00 00 09 02 00 00 01 05 00 00 23 2c 00 00 2e d7 00 b3 01 67 00 00 00 00 00 00 00 00 00 00 cd 78 06 a4 00 02 00 00 72 c6 5a
Thu Sep 26 17:36:39 PDT 2019: fc 2d 00 00 00 09 02 00 00 01 05 00 00 23 2e 00 00 2e d7 00 b3 01 67 00 00 00 00 00 00 00 00 00 00 cd 78 06 a4 00 02 00 00 77 86 5a
Thu Sep 26 17:36:39 PDT 2019: fc 2d 00 00 00 09 02 00 00 01 05 00 00 23 2c 00 00 2e d7 00 b3 01 67 00 00 00 00 00 00 00 00 00 00 cd 78 06 a4 00 02 00 00 72 c6 5a
Thu Sep 26 17:36:39 PDT 2019: fc 2d 00 00 00 09 02 00 00 01 05 00 00 23 2e 00 00 2e d7 00 b3 01 67 00 00 00 00 00 00 00 00 00 00 cd 78 06 a4 00 02 00 00 77 86 5a
Thu Sep 26 17:36:40 PDT 2019: fc 2d 00 00 00 09 02 00 00 01 05 00 00 23 2c 00 00 2e d7 00 b3 01 67 00 00 00 00 00 00 00 00 00 00 cd 78 06 a4 00 02 00 00 72 c6 5a
Thu Sep 26 17:36:40 PDT 2019: fc 2d 00 00 00 09 02 00 00 01 05 00 00 23 2e 00 00 2e d7 00 b3 01 67 00 00 00 00 00 00 00 00 00 00 cd 78 06 a4 00 02 00 00 77 86 5a
Thu Sep 26 17:36:40 PDT 2019: fc 2d 00 00 00 09 02 00 00 01 05 00 00 23 2d 00 00 2e d7 00 b3 01 67 00 00 00 00 00 00 00 00 01 00 00 cd 78 06 a4 00 02 00 00 75 ba 5a
Thu Sep 26 17:36:40 PDT 2019: fc 2d 00 00 00 09 02 00 00 01 05 00 00 23 2b 00 00 2e d7 00 b3 01 67 00 00 00 00 00 00 00 00 01 00 00 cd 78 06 a4 00 02 00 00 7a 7a 5a
Thu Sep 26 17:36:40 PDT 2019: fc 2d 00 00 00 09 02 00 00 01 05 00 00 23 2e 00 00 2e d7 00 b3 01 67 00 00 00 00 00 00 00 00 00 00 cd 78 06 a4 00 02 00 00 77 86 5a
Thu Sep 26 17:36:40 PDT 2019: fc 2d 00 00 00 09 02 00 00 01 05 00 00 23 2c 00 00 2e d7 00 b3 01 67 00 00 00 00 00 00 00 00 00 00 cd 78 06 a4 00 02 00 00 72 c6 5a
Thu Sep 26 17:36:40 PDT 2019: fc 2d 00 00 00 09 02 00 00 01 05 00 00 23 2d 00 00 2e d7 00 b3 01 67 00 00 00 00 00 00 00 00 00 00 cd 78 06 a4 00 02 00 00 71 46 5a
Thu Sep 26 17:36:40 PDT 2019: fc 2d 00 00 00 09 02 00 00 01 05 00 00 23 2c 00 00 2e d7 00 b3 01 67 00 00 00 00 00 00 ff ff 00 00 cd 78 06 a4 00 02 00 00 16 c4 5a
```

d. Get last 40 connection history for a robot (connected/disconnected)

http://192.168.1.2:8090/robot_test/connection/history?id=9

```
bot 9 connection history
17:42:54.825: bot 9 is offline (refresshFeedBack)
17:42:54.825: bot 9 is online (BotRetriver)
17:42:54.825: bot 9 is offline
17:42:54.825: bot 9 is online (BotRetriver)
```

e. Display robot information (very important! We may consider combine two as one)

<Note> Please install json plug-in/add-on in your browser so that each bot info can be viewed clearly on botfeedbacks

List all connected bot information

http://192.168.1.2:8090/botfeedbacks

2. Determine bot status

a. http://192.168.1.2:8090/botstatus?id=9 (list id =9 robot status)


```
{
  "botList": [
    {
      "BotId": 9,
      "Current_X": 9000,
      "Current_Y": 13000,
      "MissionFeedback": "Assign Mission Success",
      "ErrorCode": "Normal",
      "WarningCode": "Current Battery Level is Low",
      "isOffline": false,
      "isCharging": false,
      "isWaitingForCharger": false,
      "chargingStationID": -1,
      "isDisabled": true,
      "socketLocalPort": 9000,
      "socketRemotePort": 5013,
      "socketLocalAddress": "/192.168.1.2",
      "socketRemoteAddress": "/192.168.1.209"
    }
  ]
}
```


b. http://192.168.1.2:8090/botstatus?id=999 (list all robot status)

3. Testing a charger (make sure it isn't assigned to a robot). 26471 is charger id.

a. http://192.168.1.2:8090/charger_test?cid=26471&action=up

```
Charger is going up -- succeed
```

b. http://192.168.1.2:8090/charger_test?cid=26471&action=down

```
Charger is going down -- succeed
```

c. 192.168.1.2:8090/charger_test?cid=26471&action=check

4. Getting information for battery charging schedule:

a. http://192.168.1.2:8090/charging_test/plan?id=9 (give a robot charging plan)

b. http://192.168.1.2:8090/charging_test/info

```
we have total 5 robots
robot id: 3 with battery: 52300 at location: (6000,10000)
    robot id: 3 has charging task towards station id 26471
robot id: 9 with battery: 52600 at location: (9000,13000)
robot id: 2 with battery: 58700 at location: (11000,7000)
    robot id: 2 at charging station
    robot id: 2 has charging task towards station id 0
robot id: 6 with battery: 54700 at location: (10000,14000)
robot id: 8 with battery: 52400 at location: (3000,8000)
************************************************************
total 0 robots need charging batteries (not include those already having charging tasks
There is no bot which needs to charge it battery
************************************************************
We have total 2 charging stations
Charing station id: 0 at (11000, 7000)
Charing station id: 26471 at (7000, 7000)
************************************************************
no charging station available
************************************************************
If a robot's location is same as a charger's location, we consider it is charging battery
```

5. Get all pending/working tasks (unique task)

http://192.168.1.2.:8090/utask


```
[
  {
    "TaskID": 1500,
    "TaskStatusID": 3,
    "TaskTypeID": 6,
    "BOTID": 8,
    "PODID": -1,
    "Org_X": 3000,
    "Org_Y": 8000,
    "Des_X": 11000,
    "Des_Y": 9000
  }
]
```


6. Kill a robot (you have to turn off the robot first, or disconnect it from the network)

a. http//192.168.1.2:8090/kill?id=9

You should see the webpage popping up “ok“ if the robot is killed successfully.