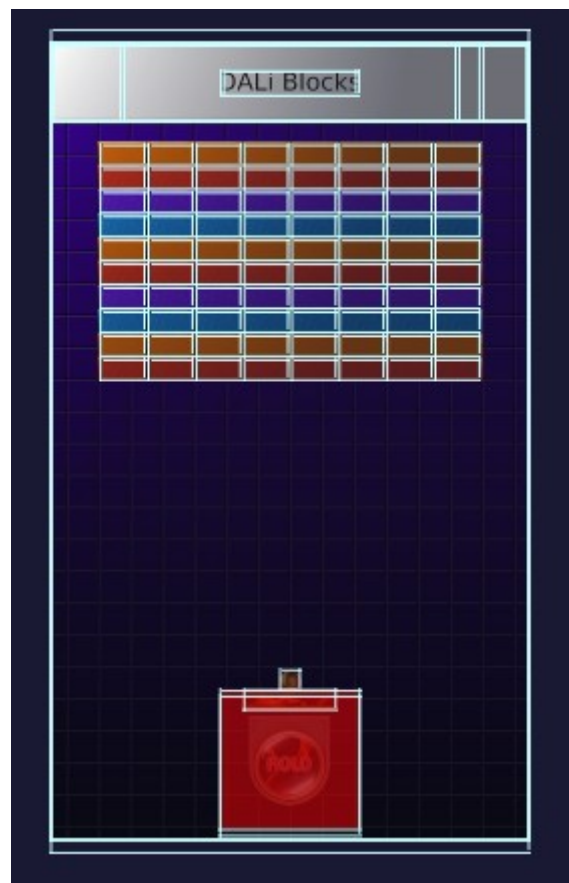


Stagehand Visual Debugger for DALi



Introduction

Stagehand is an open source tool that allows a developer to:

- Connect to a DALi application running on:
 - Tizen
 - Android
 - Ubuntu
- View a wireframe of the current scene on top of a screen shot
- Modify properties in the scene
- Monitor performance of the application
- Provides automatic updates to the latest version

Full source code is available from <http://github.com/gamoeba/stagehand.git>
It is released under the Apache 2 licence.

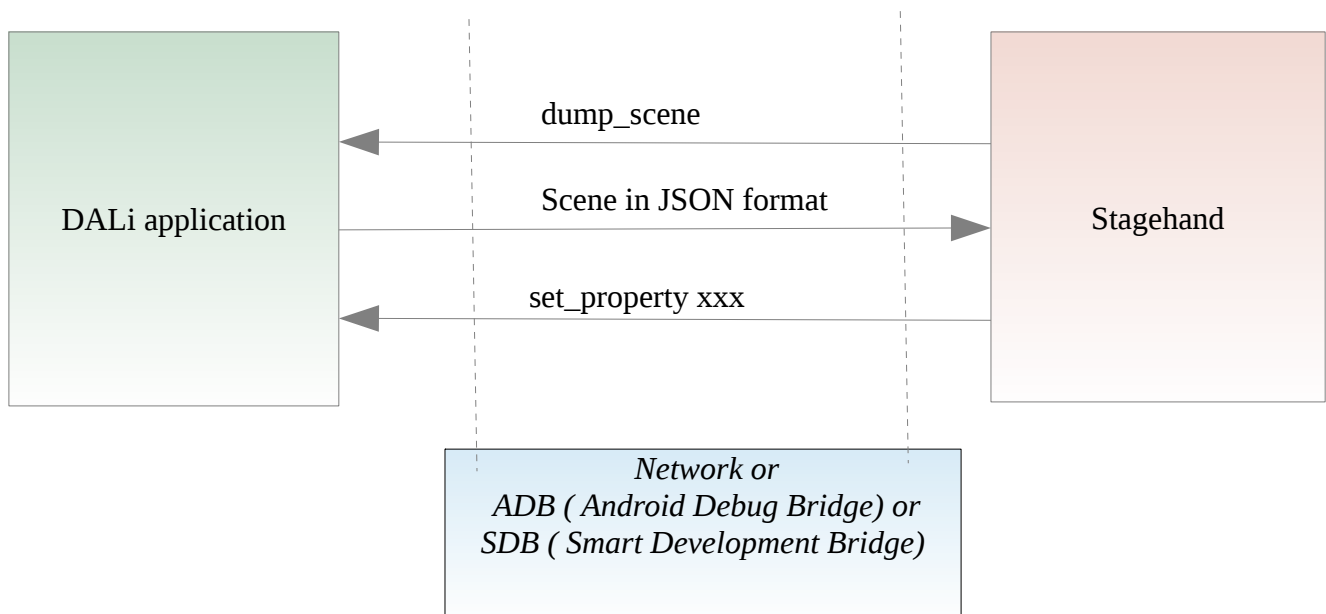
Installing StageHand on Ubuntu

<http://www.gamoeba.com/stagehand/>

Install both files. Start with the QT dependencies first.

How it works

Stagehand connects to DALi via the network using a TCP/IP connection.



DALi setup

Need to build Adaptor patch from (if it hasn't been merged yet):

<https://review.tizen.org/gerrit/#/c/25057/>

Network setup

To enable network control on DALi, environment variable must be set:

```
$ export DALI_NETWORK_CONTROL=1 to enable
```

Or run the application with the variable set.

```
$ DALI_NETWORK_CONTROL=1 /usr/apps/com.samsung.dali-demo/bin/dali-demo
```

Check what network port the application is using. It will be from (3031 onwards).

If running DALi on desktop, just type netstat -tlnp. On Tizen log into the device and run netstat.
E.g.

```
$ su
```

```
$ netstat -tlnp
```

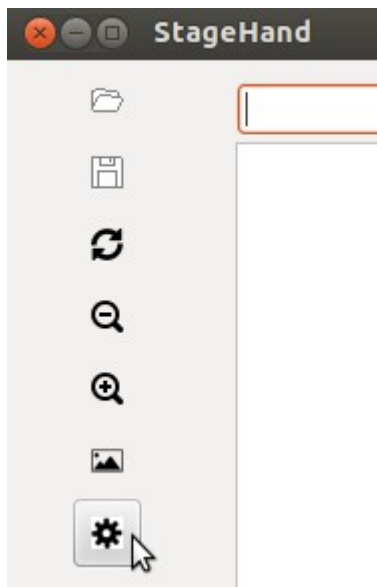
```
-sh-4.1# su
sh-4.1# netstat -tlnp
Active Internet connections (only servers)
Proto Recv-Q Send-Q Local Address           Foreign Address         State       PID/Program name
tcp        0      0 0.0.0.0:8208           0.0.0.0:*               LISTEN      676/data-provider-m
tcp        0      0 0.0.0.0:6000           0.0.0.0:*               LISTEN      289/Xorg
tcp        0      0 0.0.0.0:8209           0.0.0.0:*               LISTEN      676/data-provider-m
tcp        0      0 0.0.0.0:22             0.0.0.0:*               LISTEN      1155/sshd
tcp        0      0 0.0.0.0:3031           0.0.0.0:*               LISTEN      694/cluster-home
tcp        0      0 0.0.0.0:3032           0.0.0.0:*               LISTEN      1478/lockscreen
tcp        0      0 :::6000                :::*                     LISTEN      289/Xorg
tcp        0      0 :::22                  :::*                     LISTEN      1155/sshd
```

home-screen using port 3031

lock screen using port 3032

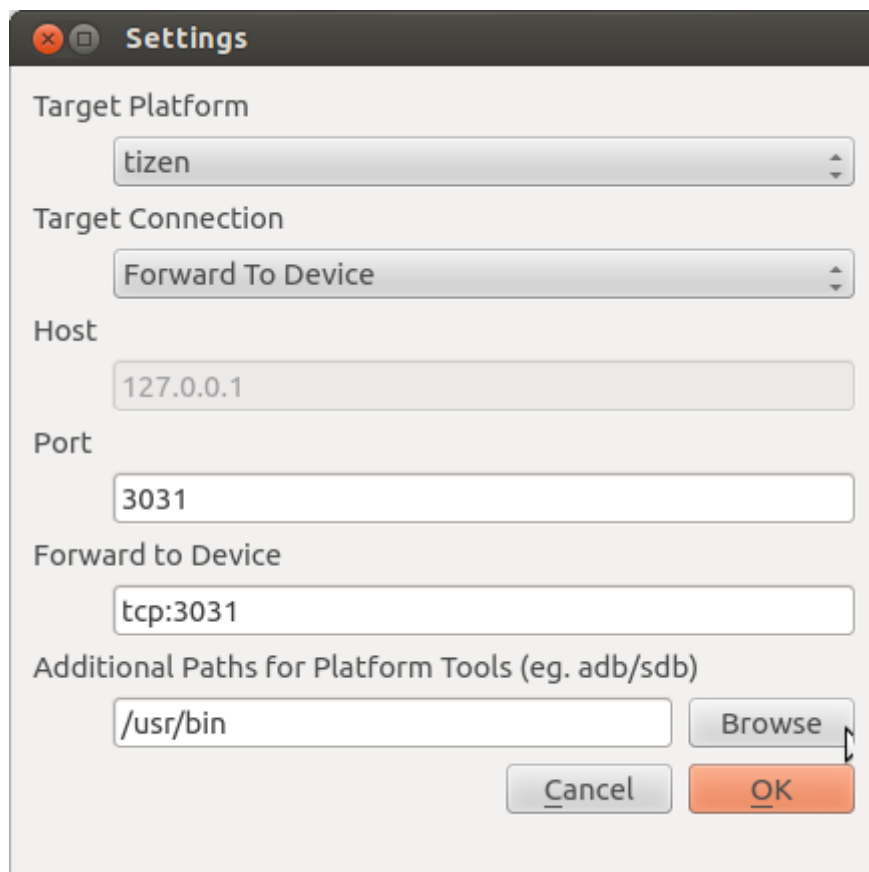
Connecting with Stagehand

Click the settings icon shown below

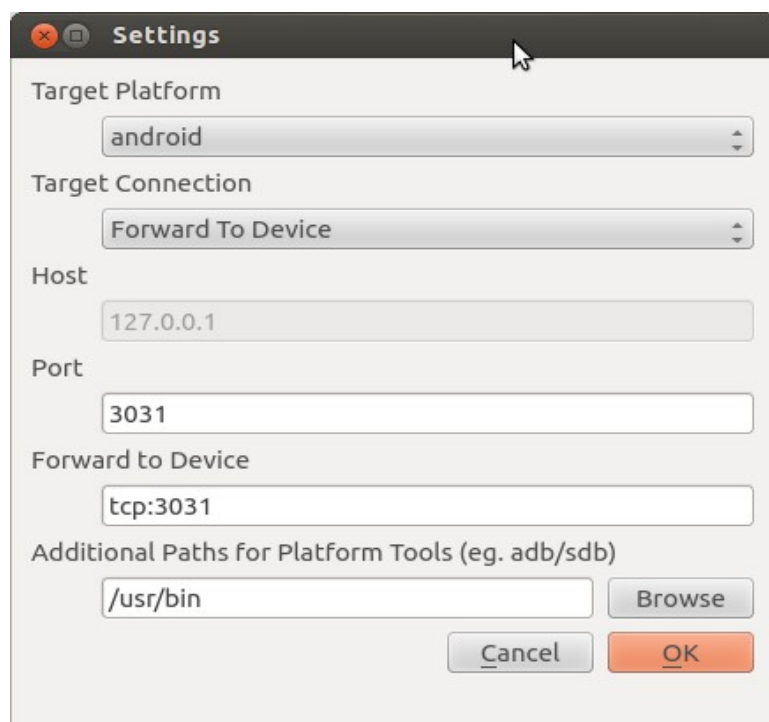


Connect to DALi running on Tizen

Here we are connecting to a device running SDB



Connect to DALi running on Android



A screenshot of a 'Settings' dialog box. The 'Target Platform' dropdown is set to 'android'. The 'Target Connection' dropdown is set to 'Forward To Device'. The 'Host' text field contains '127.0.0.1'. The 'Port' text field contains '3031'. The 'Forward to Device' text field contains 'tcp:3031'. The 'Additional Paths for Platform Tools (eg. adb/sdb)' text field contains '/usr/bin'. There are 'Browse', 'Cancel', and 'OK' buttons at the bottom.

Settings

Target Platform
android

Target Connection
Forward To Device

Host
127.0.0.1

Port
3031

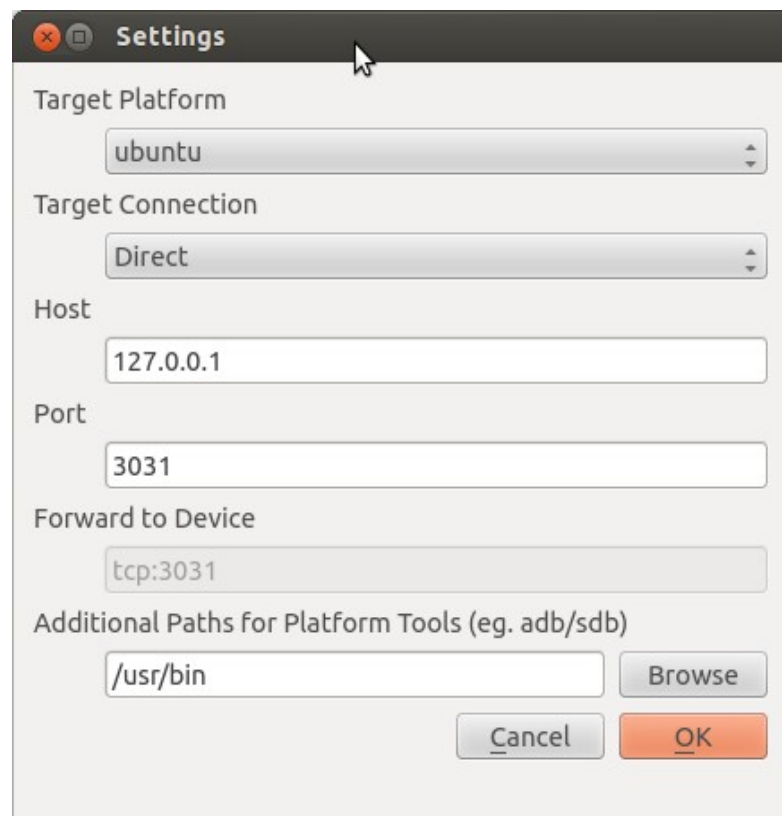
Forward to Device
tcp:3031

Additional Paths for Platform Tools (eg. adb/sdb)
/usr/bin

Browse

Cancel OK

Connect to DALi running on Desktop (Ubuntu)



A screenshot of a 'Settings' dialog box. The 'Target Platform' dropdown is set to 'ubuntu'. The 'Target Connection' dropdown is set to 'Direct'. The 'Host' text field contains '127.0.0.1'. The 'Port' text field contains '3031'. The 'Forward to Device' text field contains 'tcp:3031'. The 'Additional Paths for Platform Tools (eg. adb/sdb)' text field contains '/usr/bin'. There are 'Browse', 'Cancel', and 'OK' buttons at the bottom.

Settings

Target Platform
ubuntu

Target Connection
Direct

Host
127.0.0.1

Port
3031

Forward to Device
tcp:3031

Additional Paths for Platform Tools (eg. adb/sdb)
/usr/bin

Browse

Cancel OK

Using Stagehand

Click Refresh to load the current scene from the device.

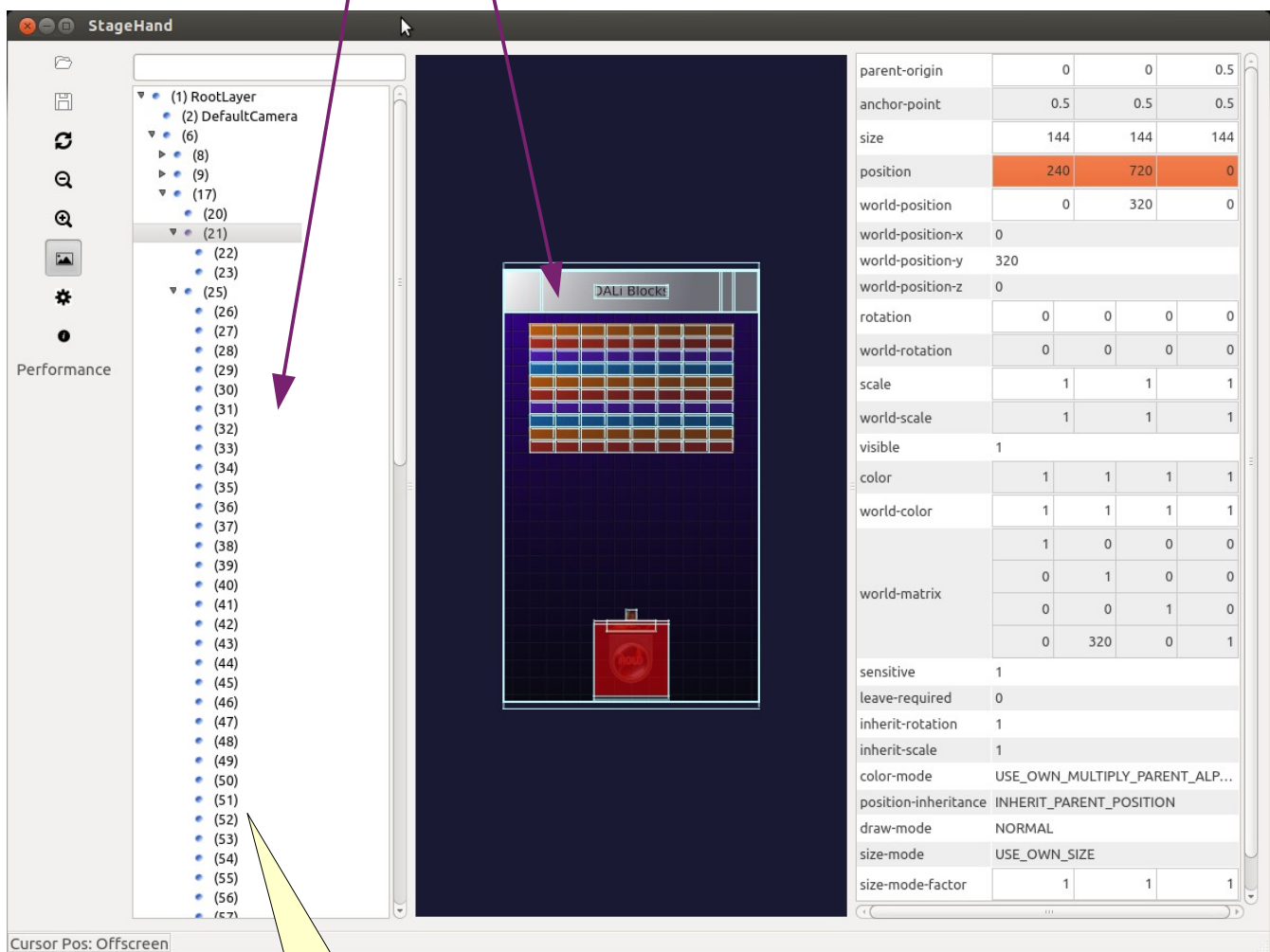


Click screen shot to get overlay current screen



Select an actor by clicking on it. To cycle through actor heirachy, keep clicking same spot.

Or select using the actor tree



To help debugging try setting
Actor Names in your application

Saving Scene



This will create a zip file with the JSON scene and a screen grab from the device.

Loading a Scene



Zooming in and out



Modifiy properties in the application

- Edit any properties
- Click Send
- Click Refresh to update Stagehand



The screenshot shows a 3D scene on the left and a properties panel on the right. The scene is a dark blue stage with several white wireframe boxes representing objects. The properties panel on the right has a 'Clear' button and a 'Send' button. A mouse cursor is hovering over the 'Send' button. Below the buttons is a table with properties and their values. A purple arrow points from the 'Send' button to the 'size' property in the table. Another purple arrow points from the 'Edit any properties' list item to the 'size' property. A third purple arrow points from the 'Click Refresh to update Stagehand' list item to the 'Refresh' icon.

id	property	x	y	z
154	position	30	28.36	0
154	size	100	28.45	28.45

parent-origin	0	0	0.5
anchor-point	0	1	0.5
size	200.1	28.45	28.45
position	-9.847	28.36	0
world-position	0	-360	0
world-position-x	0		
world-position-y	-360		
world-position-z	0		
rotation	0	0	0
world-rotation	0	0	0
scale	1	1	1
world-scale	1	1	1
visible	1		

Performance monitoring (Beta Feature)

To enable performance option. Edit

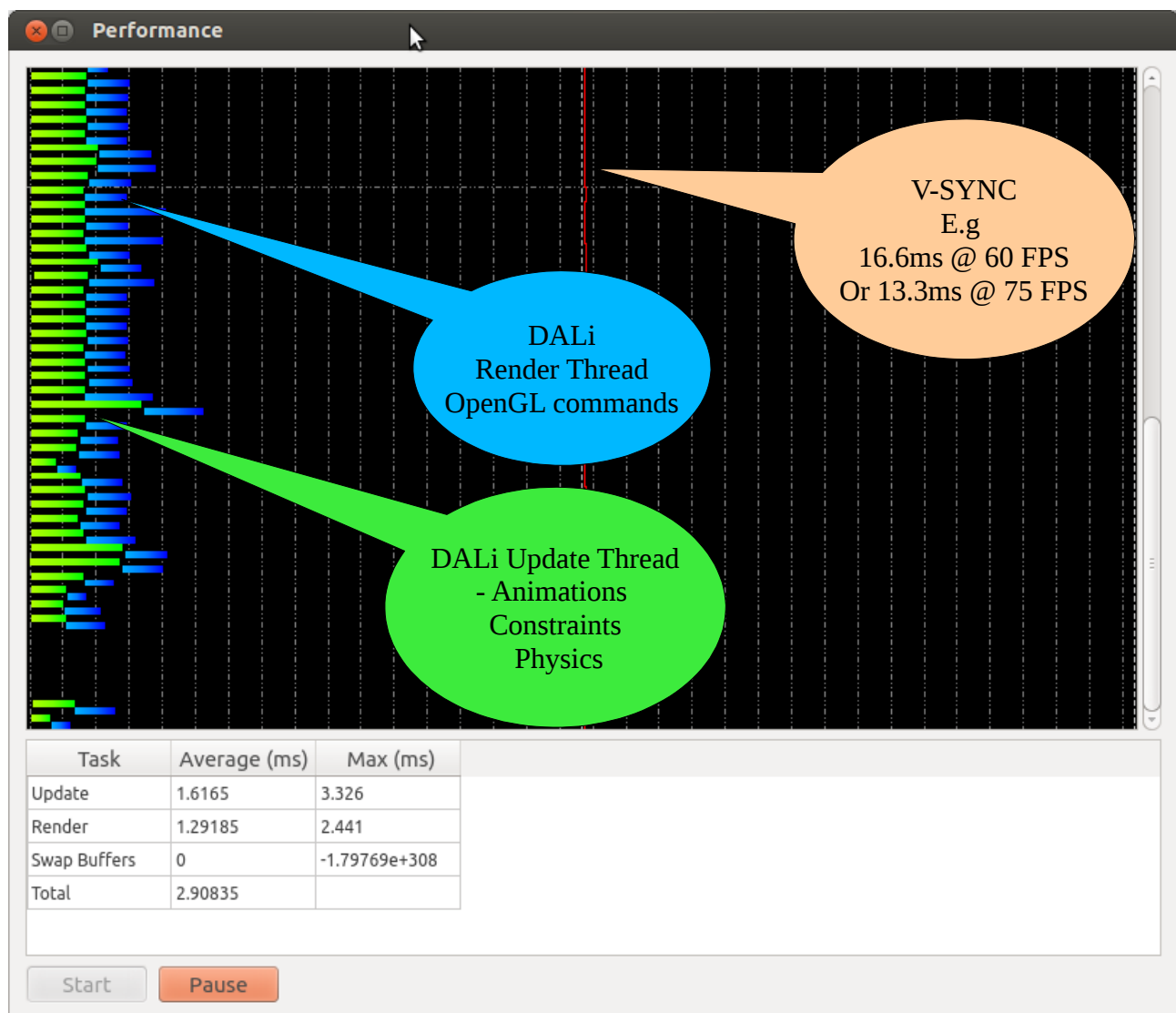
~/stagehand/stagehand.ini

Set perfmode=on

Restart application. Click performance

Performance

0ms 16.6 ms



Trouble shooting

You can manually check the network is enabled on the DALi application using netcat. In the example below we are connecting to a Tizen device using SDB port forwarding. After running `nc localhost 3031` we type **help**

```
$ sdb forward tcp:3031 tcp:3031
$ nc localhost 3031
help
~~~~~
Dali performance console
~~~~~
list_metrics - list available metrics
enable_metric metricId - enable a metric
disable_metric metricId - disable a metric

set_marker value -output Dali markers
: Bit 0 = V_SYNC (1)
: Bit 1 = Update task (2)
: Bit 2 = Render task (4)
: Bit 3 = Event Processing task (8)
: Bit 4 = SwapBuffers (16)
: Bit 5 = Life cycle events (32)
: Bit 6 = Resource event (64)

set_properties - set an actor property command. Format:
set_properties |ActorIndex;Property;Value|, e.g:
set_properties |178;Size;[ 144.0, 144.0, 144.0 ]|178;Color;[ 1.0, 1.0, 1.0 ]|

dump_scene - dump the current scene in json format
```

Tizen smack

If you can't connect to a DALi application, but using netstat you can see a port is open. Check the smack log for errors:

```
tail -f -n 10 /var/log/audit/audit.log | grep 'internet'
```

If it is being blocked, you temporarily enable it by editing:

```
/etc/smack/accesses2.d/ your-app-name
then add: system::user_internet .....app-name rw
```

then restart the app.