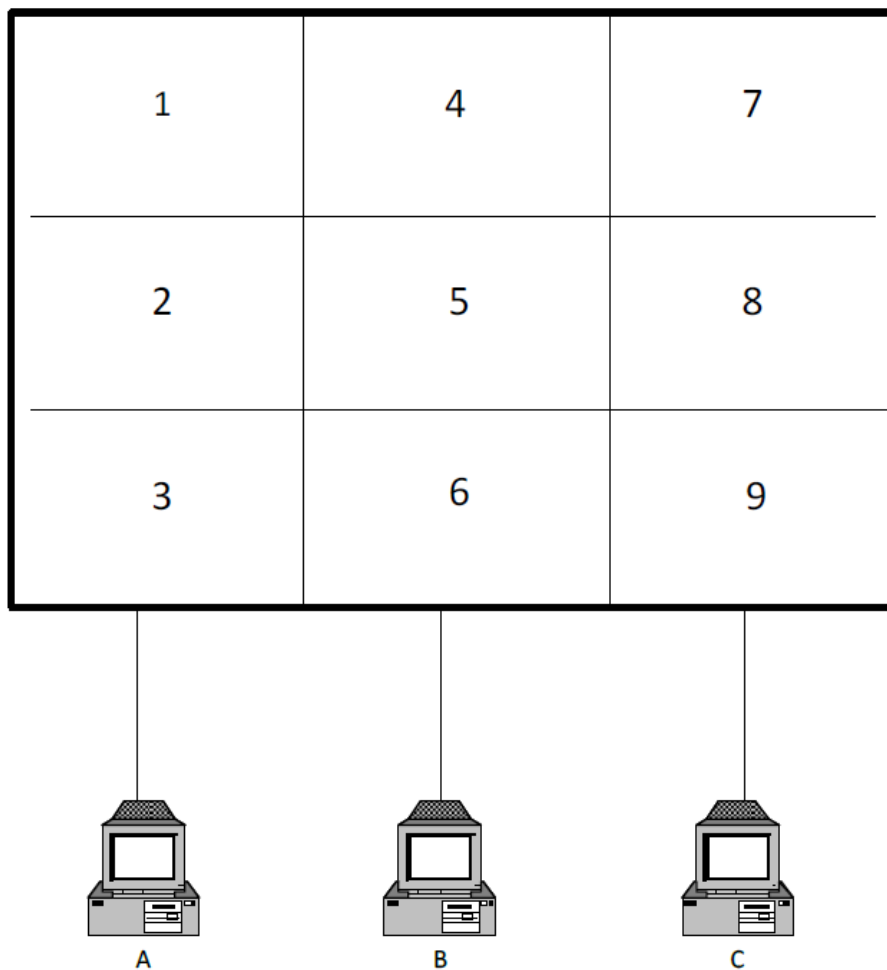


Touch Screen for Multiple Computers Solution



1. Background requirement

In some projects, we need to launch a large frame over the video wall controlled by multiple computers. While one person touches at the left side of the wall controlled by the one computer, the other side of the video wall controlled by other computers is also available for touch.



The video grid wall is made up by the monitors 1, 2, 3, 4, 5, 6, 7, 8, 9 and the computers A, B, C.

The monitors group 1, 2, and 3 is controlled by the computer A.

The monitors group 4, 5, and 6 is controlled by the computer B.

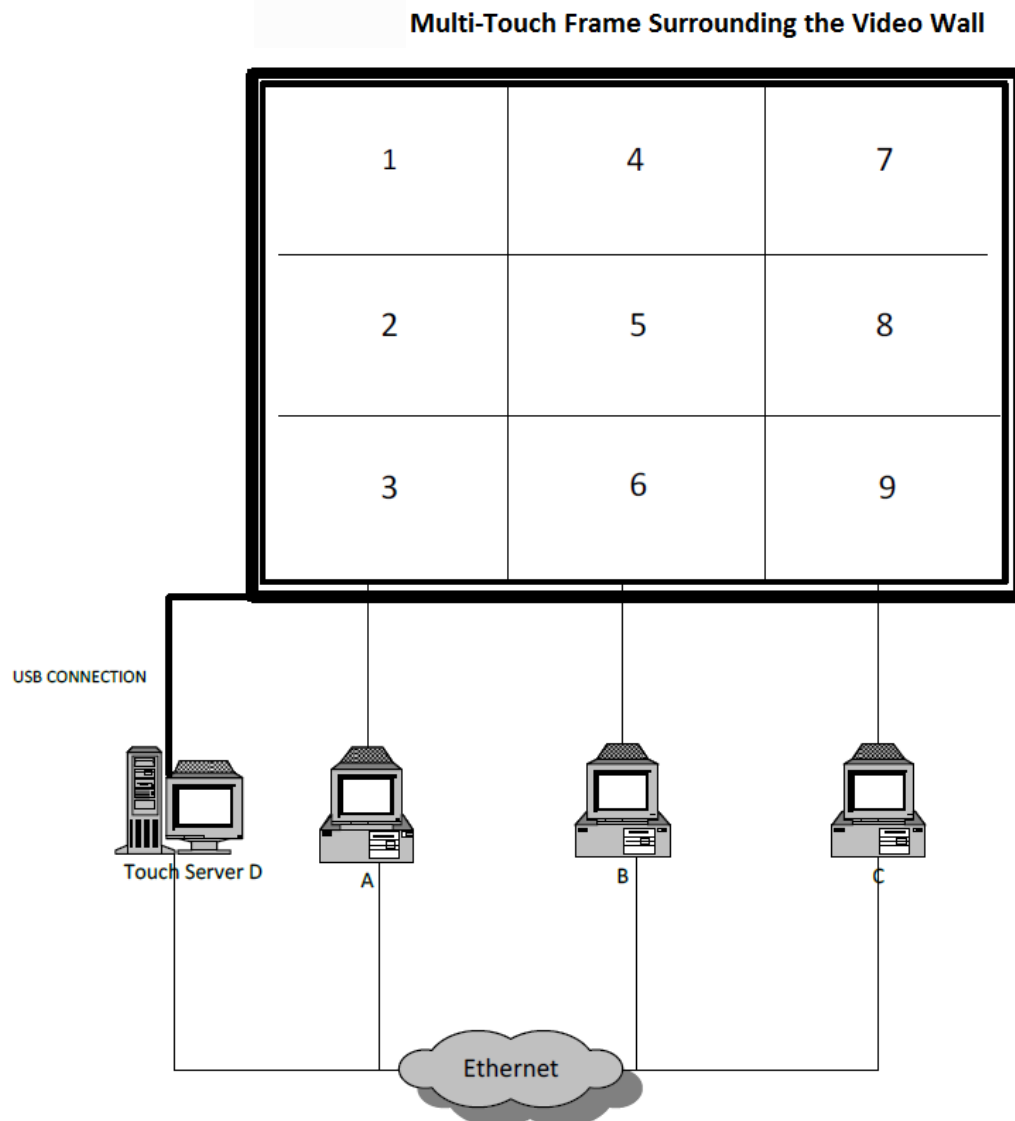
The monitors group 7, 8, and 9 is controlled by the computer C.

We want to use a big touch frame stretching across the 9 monitors; each monitor will also available for touch simultaneously

2. Technical Explanation

The Multi-touch hardware can forward/broadcast touch data via UDP/TCP connections in Tuio format. Other computers connected in a same LAN(Local Area Network) can receive Tuio data and transform to Windows native touch data.

We can build the touch frame system as a server to send the touch data, computer A, B and C will establish the connection to the server.



3. Implement Steps

3.1 Work Environment Building:

- All computers connect to a same LAN;
- PQ Labs Multi-Touch Frame connects to the Touch server D with USB cables;
- Install PQ Labs touch driver on every computer, including Touch server D and computer A/B/C;
- This solution is only available for Windows 7 and later operating systems;
- **Install PQ Labs touch driver V4.1806 or later.**

3.2 Configuration for Server Computer (D)

Assuming the IP addresses of these computers are below:

Computer D(Touch Server): 192.168.1.D

Computer A: 192.168.1.A

Computer B: 192.168.1.B

Computer C: 192.168.1.C

1) Go to touch driver installation path:

- 32 bit OS: C:\Program Files\PQLabs\MultiTouchPlatform
- 64 bit OS: C:\Program Files (x86)\PQLabs\MultiTouchPlatform

2) Open and edit the file "mtsvrset.xml", try to find this section below:

```
...
<tuio tuio_support="true" flash_tuio_support="true" profile="2dcur">
  <server type="udp" host="127.0.0.1" port="3333" />
  <server type="tcp" host="127.0.0.1" port="3000" />
</tuio>
...
```

3) Fill in Client computers IP address to receive TUIO UDP data via the LAN;

```
...
<tuio tuio_support="true" flash_tuio_support="true" profile="2dcur">
  <server type="udp" host="192.168.1.A" port="3333" />
  <server type="udp" host="192.168.1.B" port="3333" />
  <server type="udp" host="192.168.1.C" port="3333" />
  <server type="tcp" host="127.0.0.1" port="3000" />
</tuio>
...
```

4) Save and exit;

5) Reboot or restart the MultiTouchPlatform software for new configuration taking effect.

3.3 Configuration for Client Computer (A/B/C)

For client computer configuring, it is necessary to modify both the mtsvrset.xml and service.xml.

3.3.1 mtsvrset.xml

1) Go to touch driver installation path:

- 32 bit OS: C:\Program Files\PQLabs\MultiTouchPlatform
- 64 bit OS: C:\Program Files (x86)\PQLabs\MultiTouchPlatform

2) Open and edit the file "mtsvrset.xml", try to find this section below:

```
...  
<tuio tuio_support="true" flash_tuio_support="true" profile="2dcur">  
  <server type="udp" host="127.0.0.1" port="3333" />  
  <server type="tcp" host="127.0.0.1" port="3000" />  
</tuio>  
...
```

3) Delete the two rows codes to disable TUIO broadcasting function on client computers;

```
...  
<tuio tuio_support="true" flash_tuio_support="true" profile="2dcur">  
</tuio>  
...
```

4) Save and exit;

5) Reboot or restart the MultiTouchPlatform software for new configuration taking effect.

3.3.2 service.xml

1) Go to touch driver installation path:

- 32 bit OS: C:\Program Files\PQLabs\MultiTouchPlatform
- 64 bit OS: C:\Program Files (x86)\PQLabs\MultiTouchPlatform

2) Open and edit the file “service.xml”, try to find this section below:

```
...
<!--<data_source type="tuio">
  <accept_range use="false" left="0.0" top="0.0" right="1.0" bottom="1.0" />
  <tuioclient type="udp" host="127.0.0.1" port="3344"></tuioclient>
  <tuioclient type="tcp" host="127.0.0.1" port="3001"></tuioclient>
  <hardware serial="tuio" x="1156" y="652"/>
</data_source-->
...
```

3) Delete the “<!--” and “-->” to make the source code work.

Uncomment this word, enable “accept_range use”, fill in Touch server computer IP address, and correct UDP port number;

I. For computer A:

```
...
<data_source type="tuio">
  <accept_range use="true" left="0.0" top="0.0" right="0.3333" bottom="1.0" />
  <tuioclient type="udp" host="192.168.1.D" port="3333"></tuioclient>
  <tuioclient type="tcp" host="127.0.0.1" port="3001"></tuioclient>
  <hardware serial="tuio" x="1156" y="652"/>
</data_source>
...
```

II. For computer B:

```
...
<data_source type="tuio">
  <accept_range use="true" left="0.3333" top="0.0" right="0.6666" bottom="1.0"
/>
  <tuioclient type="udp" host="192.168.1.D" port="3333"></tuioclient>
  <tuioclient type="tcp" host="127.0.0.1" port="3001"></tuioclient>
  <hardware serial="tuio" x="1156" y="652"/>
</data_source>
...
```

III. For computer C:

```
...
<data_source type="tuio">
  <accept_range use="true" left="0.6666" top="0.0" right="1.0" bottom="1.0" />
  <tuioclient type="udp" host="192.168.1.D" port="3333"></tuioclient>
  <tuioclient type="tcp" host="127.0.0.1" port="3001"></tuioclient>
  <hardware serial="tuio" x="1156" y="652"/>
</data_source>
...
```

Note:

The parameters of “left” and “right” for Client Computer configuration is based on three computers in this instance.

If there is other number of computers in your case, the parameters of “left” and “right” should be calculated accordingly.

Eg:

There are 4 client computers in your case, the parameters of “left” and “right” are below:

Computer A:

```
<accept_range use="true" left="0.0" top="0.0" right="0.25" bottom="1.0" />
```

Computer B:

```
<accept_range use="true" left="0.25" top="0.0" right="0.5" bottom="1.0" />
```

Computer C:

```
<accept_range use="true" left="0.5" top="0.0" right="0.75" bottom="1.0" />
```

Computer D:

(Not mean the server, but just stand for the 4th client computer)

```
<accept_range use="true" left="0.75" top="0.0" right="1.0" bottom="1.0" />
```

4) Save and exit;

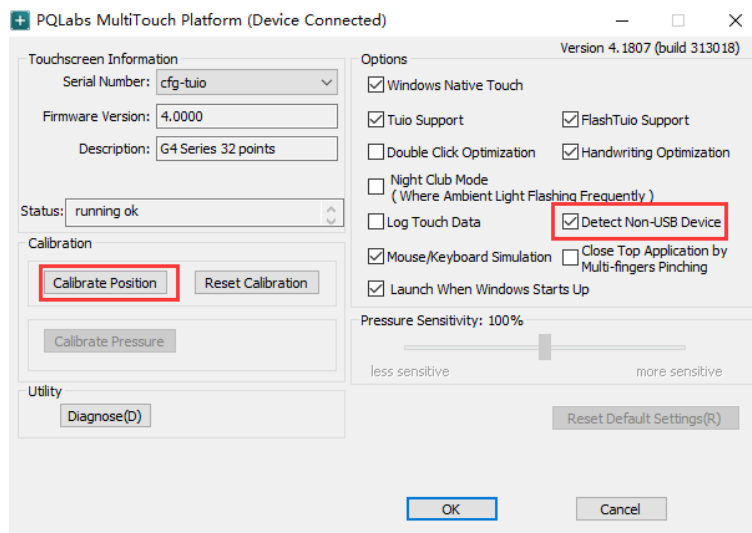
5) Reboot or restart the MultiTouchPlatform software for new configuration taking effect.

3.4 Calibration

It is necessary to execute calibration operation **ONLY for Client computers** to make sure touch response is accurate.

Steps to calibrate:

- 1) Open the MultiTouchPlatform software running on client computer;
- 2) Check the “Detect Non-USB Device” and click on “Calibrate Position”



- 3) Complete each point calibration one by one.