Multi-User Projection Setup 4k Wall

**Prepare application workstation**

- power on *hydra* workstation

- remote login to hydra workstation via ssh from any workstation

- execute modeline fix script to enable all video outputs on GPUs

- ./opt/client/dlp-tools/hydra-fix.sh

- execute *genlock* script for 4 GPUs

- ./opt/client/dlp-tools/genlock\_4\_m6000.sh

- test video output on hydra

- ./opt/projector-calib/examples/test\_4K\_DBL.sh

- killall slot

- possibly resend shutter config to shutter glasses

- ./opt/shutterConfig/radioShutterControlTool 1346\_DBL\_noBox.xml

- in console: resend()

**Enable ART tracking system**

- power on netgear switch (next to *hydra* workstation) AND wait until fully powerd on (LED becomes green)

- power on ART tracking controller

- power on tracking workstation

- start *Dtrack2* software

- enable tacking in *Dtrack2* software

**Prepare projection setup**

- start *Projector Controller 4.6* software on tracking workstation

- wait until all 4 projectors appear in GUI

- Power on all 4 projectors

- load group setting to activate all 4 projectors at once

- power on radio emitter for shutter glasses (power bar right next to right speaker of the screen)

- turn on shutter glasses

**Start Avango Application**

- remote login to hydra workstation via ssh from any workstation

- change to avango-applications repository

- e.g. /opt/vr\_demos/avango-applications\_dbl

- connect Spheron USB hub to hydra (USB cable to *hydra* on the right side of the projection screen)

- possibly connect Bluetooth devices (BUW-pointer, Photportal devices)

- ssh -X hydra in terminal

- execute *blueman-manager* in this terminal

- connect devices

- test with *evtest* if events arrive on hydra

- possibly mount data repositories

- mount /mnt/pitoti

- mount /mnt/data\_internal

- execute *start.sh* script with the respective config file

- e.g. ./start.sh configs/hydra.py

**Shutdown Procedure**

- turn off all input devices (pointers, Photoportal devices)

- turn off all shutter glasses and charge batteries

- power off radio emitter for shutter glasses

- turn of projectors via *Projector Control 4.6* software

- turn of tracking system via *Dtrack2* software

- shutdown tracking workstation

- power off ART tracking controller

- power off netgear switch

- shutdown *hydra* workstation

Multi-User 3D-Tabletop

**Prepare application workstation**

- power on *medusa* workstation

- wait until Nvidia driver is installed

- execute *nvidia-smi* in terminal to check if driver is installed

- execute modeline fix script

- ./opt/client/dlp-tools/medusa-fix.sh

- execute *genlock* script for 3 GPUs

- ./opt/client/genlock\_3\_m6000.sh

**Enable ART tracking system**

- power on ART cameras

- power on ART tracking controller

- start *Dtrack2* software on tracking workstation

- enable *external TTL signal both edges* in *Synccard* Settings

- enable tacking in *Dtrack2* software

**Prepare projection setup**

- turn on sync-box (powerplug ontop of projector case)

- turn on projector (powerplug behind projector case)

- turn on hardware muxers (separate powerplug at medusa powerbar)

- remote login to medusa workstation via ssh from any workstation

- prepare network interface for communication with projector

- ./opt/3D43-TCP\_CTRL/prepare2start3D43.sh

- turn on projector lamps

- ./opt/3D43-TCP\_CTRL/start3D43.sh (wait until all color channels appear)

- hide info messages

- ./opt/3D43-TCP\_CTRL/sendEnterToAll.sh

- load color-ramps

- open Projector Web-Gui ([http://](http://daedalos/)medusa in browser)

- press button "load color tables"

- turn on shutter glasses

**Start Touch Server**

- turn on IR-Lighting (powerplug ontop of projector case)

- power on atalante workstation

- start touch server

- ./opt/mser-tracking/start.sh

- set parameters:

- CC Threshold: 5-10

- TUIO Host: medusa

- capture Background image

**Start Avango Application**

- remote login to medusa workstation via ssh from any workstation

- change to avango-applications repository

- possibly connect Bluetooth devices (BUW-pointer, Photportal devices)

- ssh -X medusa in terminal

- execute *blueman-manager* in this terminal

- connect devices

- test with *evtest* if events arrive on medusa

- possibly mount data repositories

- mount /mnt/pitoti

- mount /mnt/data\_internal

- execute *start.sh* script with the respective config file

- e.g. ./start.sh configs/medusa.py

Multi-User Projection Setup DLP-Wall

**Prepare application workstation**

- power on *kerberos* workstation

- wait until Nvidia driver is installed

- execute *nvidia-smi* in terminal to check if driver is installed

- execute *genlock* script for 3 GPUs

- ./opt/client/genlock\_3\_m6000.sh

**Enable ART tracking system**

- power on ART cameras

- power on ART tracking controller

- start *Dtrack2* software on tracking workstation

- enable tacking in *Dtrack2* software

**Prepare projection setup**

- turn on ventilation and air conditioning in projector room

- plug in the three projectors

- turn on sync-box (powerplug ontop of projector case)

- power on projectors

- turn on daedalos workstation

- open Projector Web-Gui ([http://daedalos](http://daedalos/) in browser)

- turn on projector red1, green1, and blue1

- turn on shutter glasses

**Start Avango Application**

- remote login to kerberos workstation via ssh from any workstation

- change to avango-applications repository

- possibly connect Bluetooth devices (BUW-pointer, Photportal devices)

- ssh -X kerberos in terminal

- execute *blueman-manager* in this terminal

- connect devices

- test with *evtest* if events arrive on kerberos

- possibly mount data repositories

- mount /mnt/pitoti

- mount /mnt/data\_internal

- execute *start.sh* script with the respective config file

- e.g. ./start.sh configs/kerberos.py

Telepresence Setup DBL to VR-Lab

**Prepare render workstation in DBL**

- power on *hydra* workstation

- wait until Nvidia driver is installed

- execute *nvidia-smi* in terminal to check if driver is installed

- execute modeline fix script

- ./opt/client/dlp-tools/hydra-fix.sh

- execute *genlock* script for 4 or 8 GPUs (depending on display configuration)

- ./opt/client/dlp-tools/genlock\_8\_quadros.sh

- ./opt/client/dlp-tools/genlock\_4\_m6000.sh

**Prepare render workstation in VR-Lab (small power wall)**

- power on *athena* workstation (behind small projection screen in VR-Lab)

**Prepare server workstation in DBL**

- e.g. *greyarea* workstation

**Enable ART tracking system in DBL**

- power on netgear switch (next to *hydra* workstation)

- power on ART tracking controller

- power on tracking workstation

- start *Dtrack2* software

- enable tacking in *Dtrack2* software

**Enable ART tracking system in VR-Lab**

- power on ART tracking controller (right corner next to small projection screen in VR-Lab)

- start *Dtrack2* software on tracking workstation (is always running)

- enable tacking in *Dtrack2* software

**Prepare projection setup in DBL**

- start *Projector Controller 4.6* software on tracking workstation

- wait until all 4 projectors appear in GUI

- Power on all 4 projectors

- load group setting to activate all 4 projectors at once

- power on radio emitter for shutter glasses (power bar right next to right speaker of the screen)

- turn on shutter glasses

**Prepare projection setup in VR-Lab**

- power on the two projectors behind the small projection screen in VR-Lab

**Prepare Audio Connection**

- plug in Jabra speaker/microphone device to sever worksation in DBL

- plug in Jabra speaker/microphone device to worksation in VR-LAB (e.g. boreas)

- install mumble on both workstations

- sudo apt-get update

- sudo apt-get install mumble mumble-server

- start Mumble software on both workstations and connect them

**Prepare Kinects**

- see Kinect documentation

**Start Avango Application**

- change to avango-applications repository

- e.g. /opt/vr\_demos/avango-applications\_dbl

- connect Spheron USB hub to server workstation (e.g. greyarea)

- possibly connect Bluetooth devices (BUW-pointer, Photportal devices)

- execute *blueman-manager* on server workstation terminal

- connect devices

- test with *evtest* if events arrive on server workstation

**-** forward input streams of devices in VR-Lab to server workstation in the DBL

- see *events\_readme.md*

- possibly mount data repositories on **all** worksations (hydra, athena, and server workstation)

- mount /mnt/pitoti

- mount /mnt/data\_internal

- execute *start.sh* script with the respective config file

- e.g. ./start.sh configs/telepresence\_DBL\_LCD.py

Key-Bindings Application Framework

**Keypad (DBL setup)**

|  |  |
| --- | --- |
| **Key** | **Operation** |
| 1 | toggle to scene 1 |
| 2 | toggle to scene 2 |
| 3 | toggle to scene 3 |
| 4 | toggle to scene 4 |
| 0 | toggle shading model: PBR vs. full emissivity |
| 5 | toggle plod rendering mode: 1-pass vs. 2-pass |
| 6 | increase PLOD error threshold |
| 9 | decrease PLOD error threshold |
|  | toggle render resolution: HD vs. 4K |
| - | decrease PLOD radius scale |
| + | increase PLOD radius scale |
| . | toggle video avatar visibility |
| ENTER | reset navigation matrices |
| / | enable/disable normal visualization |
| \* | enable/disable node highlight visualization |
| BACKSPACE | enable/disable default color (texturing on/off) |

Key-Bindings Application Framework

**Keyboard**

|  |  |
| --- | --- |
| **Key** | **Operation** |
| 1 | enable/disable node highlight visualization |
| 2 | enable/disable showthrough |
| 3 | enable/disable normal visualization |
| 4 | toggle visibility dictionary for multi-context tools |
| 5 | enable/disable POI visualization |
| 6 | toggle plod rendering mode: 1-pass vs. 2-pass |
| 7 | enable/disable (depth-) lens visualization |
| 8 | toggle 3D video avatar visibility |
| 9 | toggle render resolution: 4K vs. HD |
| 0 | enable/disable default color (texturing on/off) |
| F1 | toggle to scene 1 |
| F2 | toggle to scene 2 |
| F3 | toggle to scene 3 |
| F4 | toggle to scene 4 |
| F5 | decrease PLOD radius scale |
| F6 | increase PLOD radius scale |
| F7 | increase PLOD error threshold |
| F8 | decrease PLOD error threshold |
| F9 | reset navigation matrices |
| F10 | print navigation matrices to terminal |
| F11 | toggle shading model: PBR vs. full emissivity |
| F12 | enable/disable projective textures |
| W | enable/disable wireframe rendering mode |
| H | enable/disable hiding candidate nodes |
| SPACE | enable/disable groundfollowing navigation  (only for Spacemouse Navigation) |

Key-Bindings Xbox360 Controller

|  |  |
| --- | --- |
| **Button** | **Operation** |
| X | toggle navigation mode: ground-based vs. flying |
| A | scale down (relativ to workspace center) |
| B | scale up(relativ to workspace center) |
| Left Joystick | X/Z translation |
| Right Joystick | Head/Pitch rotation (pitch only in fly-mode) |
| Left Trigger | positive Y translation (only in fly-mode) |
| Right Trigger | negative Y translation (only in fly-mode) |
| Left Bumper | positve Roll rotation (only in fly-mode) |
| Right Bumper | negative Roll rotation (only in fly-mode) |

Commands

Rsync:

sudo rsync -aAXv /home/kunert/Desktop/guacamole/avango-applications /opt/reutlingen/

lsblk

sudo mount /dev/nvme0n1p1 /mnt/ssd\_pitoti2