Setting up Ubuntu 16.04 Server with GUI

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Installing Beeline Hive client

```
sudo mkdir /opt/hive
cd /opt/hive
tar -zxvf /home/ktp/Downloads/hive-1.1.0-cdh5.8.4.tar.gz
tar -zxvf home/ktp/Downloads/hadoop-2.6.0-cdh5.8.4.tar.gz

sudo sh -c "cat << EOF > /opt/hive/beeline.sh
#!/bin/bash

# Hive startup script
# Sami Porokka, Arho Virkki 2017

export JAVA_HOME=/usr/lib/jvm/java-8-openjdk-amd64
export HADOOP_HOME=/opt/hive/hadoop-2.6.0-cdh5.8.4
/opt/hive/hive/bin/beeline -u jdbc:hive2://hadoop-c01-cn03.ad.mednet.fi:10000/$1;user=$2;password=$3
EOF

sudo chown -R ktp:ktpshared /opt/hive/
sudo ln -s /opt/hive/beeline.sh /usr/local/bin/
```

Finally, archive installation packages

```
mv hive-1.1.0-cdh5.8.4.tar.gz hadoop-2.6.0-cdh5.8.4.tar.gz hive_jdbc_2.5.18.1050.zip\
  /opt/ktp/shared/Hadoop_libraries/
```

Installing latest version of R

Follow the instructions at https://cran.r-project.org/bin/linux/ubuntu/

Summary of the installation procedure

Add Swedish CRAN mirror to apt sources

```
sudo sh -c "echo 'deb https://ftp.acc.umu.se/mirror/CRAN/bin/linux/ubuntu xenial/' \
> /etc/apt/sources.list.d/r-cran.list"
sudo apt-key adv --keyserver keyserver.ubuntu.com --recv-keys 51716619E084DAB9
```

Update and upgrade the system before installing R

```
sudo apt-get update
sudo apt-get upgrade
```

Install R with development tools

```
sudo apt-get install r-base r-base-dev r-cran-codetools r-cran-matrix r-cran-kernsmooth
```

Mounting Folders with Autofs

Mounting Windows shares (e.g. *//atdbw61.vsshp.net/KTP* Folder to */cifs/atdbw61/KTP*) to Linux simplifies certain workflows. This can be done with the Autofs utility.

Example configuration

/etc/auto.master

```
<lots of lines>
#
+auto.master
/mnt/atdbw61 /etc/auto.atdbw61 --timeout=60 --ghost
/mnt/vsshp /etc/auto.vsshp --timeout=60 --ghost
/mnt/gradient /etc/auto.gradient --timeout=60 --ghost
```

Timeout indicates the amount of time before trying to unmount the drive. The default values is set with *dismount_interval = 300* in *autfs.conf*. The ghost option creates dummy directory placeholders for unmounted drives.

/etc/auto.atdbw61

```
# User id 1000 = 'ktp', Group id 1004 = 'ktpshared' KTP
-fstype=cifs,sec=ntlmssp,iocharset=utf8,uid=1000,gid=1004,\
file_mode=0660,dir_mode=0770,credentials=/root/atdbw61 ://10.150.12.104/KTP
```

/etc/auto.vsshp

```
# User id 1000 = 'ktp', Group id 1004 = 'ktpshared'

jarjestelmat -fstype=cifs,sec=ntlmssp,iocharset=utf8,uid=1000,gid=1004,\
file_mode=0660,dir_mode=0770,credentials=/root/svcl_ktplukija ://vsshp.net/jarjestelmat/

arkisto -fstype=cifs,sec=ntlmssp,iocharset=utf8,uid=1000,gid=1004,\
file_mode=0660,dir_mode=0770,credentials=/root/svcl_ktplukija ://vsshp.net/arkisto/

yhteinen -fstype=cifs,sec=ntlmssp,iocharset=utf8,uid=1000,gid=1004,\
file_mode=0660,dir_mode=0770,credentials=/root/svcl_ktplukija ://vsshp.net/yhteinen/
```

/etc/auto.gradient

```
raw -fstype=cifs,sec=ntlm,iocharset=utf8,uid=1000,gid=1000,\
credentials=/root/sharecreds ://gradient.vsshp.net/share/raw
```

/root/atdbw61

```
username=KTP
domain=WORKGROUP
pass=<Passwd Here>
```

/root/sharecreds

```
username=share
password=<Passwd Here>
```

/root/svcl_ktplukija

```
username=svcl_ktplukija
domain=vsshp
pass=<Passwd Here>
```

Activating the new mount

```
sudo systemctl reload autofs
sudo systemctl status autofs
```

or

```
sudo systemctl restart autofs.service
```

Now, if the user belongs to the **ktpshared** group, the *KTP* folder can be accessed with

```
 cd /mnt/atdbw61/KTP/
```

and the network drive will be automatically mounted (if it was not already attached), and unmounted after a given period of time.

Installing and Using VNC Server

VNC is very robust remote desktop protocol which works smoothly from Linux, Max OS X and Windows alike. For setting up the service, see VNC Server Sertup for Ubuntu (there are also instruction for CentOS 7.

To simplify things, we further add the following files under */etc/skel/* to provide templates for **startvcn.sh** and **stopvcn.sh** commands and **xstartup** configuration file for each individual user. These files should be then edited according to personal preferences.

/ect/skel/bin/startvnc.sh

```
#!/bin/bash
vncserver -depth 24 -geometry 1280x800 -localhost -SecurityTypes VncAuth
```

/ect/skel/bin/stopvnc.sh

```
#!/bin/bash
echo "Sending SIGHUP signals to Xvnc4 instances"
killall Xvnc4 -user $USER
```

/etc/skel/.vnc/xstartup

```
#!/bin/sh

[ -x /etc/vnc/xstartup ] && exec /etc/vnc/xstartup
[ -r $HOME/.Xresources ] && xrdb $HOME/.Xresources

# The default configuration for ktpanalytics.vsshp.net
vncconfig -iconic &
startxfce4

# Close also the vnc server if the user logs out
vncserver -kill $DISPLAY
```

Tab-key (e.g. bash-autocompletion): In case that tabular key does not work properly over vnc, edit the file */etc/xdg/xfce4/xfconf/xfce-perchannel-xml/xfce4-keyboard-shortcuts.xml* and change the line

```
<property name="&lt;Super&gt;Tab" type="string" value="switch_window_key"/>
```

into

```
<property name="&lt;Super&gt;Tab" type="empty"/>
```

For details, see http://ubuntuforums.org/archive/index.php/t-1771058.html

Installing Mate Desktop

FXCE Desktop is usually sufficient for all routine tasks, but also Mate (a Gnome 2 fork) can be used. For details, see: http://itsfoss.com/install-mate-desktop-ubuntu-14-04/

Installing X2go remote desktop client

See X2Go_setup.

Extra command line components

```
sudo apt-get install tree p7zip
```

Extra GUI components

```
sudo apt-get install gedit
```

MDCharm Markdown editor

```
sudo apt-get install libhunspell-dev
sudo dpkg --install KTPDoc/Infra/bin/MdCharm/mdcharm_1.2_amd64.deb
```

Git version control

```
sudo apt-get install git

git config --global color.diff auto
git config --global color.status auto
git config --global color.branch auto
git config --global core.editor "nano"
git config --global push.default simple
```

Change the author when the system is in production

```
git config --global author.name "Arho Virkki"
git config --global user.email "arho.virkki@vtt.fi"
```

R language and tools

See *KTPDoc/Infra/notes/R/*.

PostgreSQL command line client

Since we need PostgreSQL client for 9.4, let's add the official repository also on the analytics server:

```
sudo su -c 'echo "deb http://apt.postgresql.org/pub/repos/apt/ trusty-pgdg main" >
    /etc/apt/sources.list.d/pgdg.list'
wget --quiet -O - https://www.postgresql.org/media/keys/ACCC4CF8.asc | sudo apt-key add -
sudo apt-get update
sudo apt-get install postgresql-client-9.4
```

If PostgreSQL was set up properly, it can now be accessed from command line with

```
psql -h ktppg.vsshp.net -U ktp -d postgres
```

PgAdmin3 GUI for PostgreSQL

```
sudo apt-get install pgadmin3s
```

Squirrel SQL (Generic DB client)

Download the Squirrel SQL installer from http://squirrel-sql.sourceforge.net/#installation and run the Java arhive

```
sudo java -jar squirrel-sql-3.7-standard.jar
```

Choose suitable plugins (e.g. multi source) and finally install the program under */usr/local/squirrel-sql-3.7*.

```
sudo ln -s /usr/local/squirrel-sql-3.7/squirrel-sql.sh /usr/local/bin/
```

To increase the memory available to Squirrel and to avoid Java out of memory errors, edit the */usr/local/squirrel-sql-3.7/squirrel-sql.sh* file and change the default -Xmx256m at the end of the file to something larger, e.g. -Xmx2048m.

Installing PostgreSQL Driver for Squirrel SQL

Download the appropriate driver for Java 7 from http://jdbc.postgresql.org and place it under */usr/local/lib/java/* folder:

```
sudo mkdir /usr/local/lib/java
sudo chown ktp: /usr/local/lib/java/
Downloads/postgresql-9.4-1204.jdbc41.jar /usr/local/lib/java/
```

Then open the Squirrel SQL Client and register the driver from graphical menus.

Setting up printer at T-Hospital room E664

Start the printer configuration tool

```
system-config-printer
```

And choose the following settings

```
Description:     HP LaserJet 4250
Location:        HP-LaserJet-4250 @ T-Hospital 6. floor room E664
Device URI:      hp:/net/hp_LaserJet_4250?ip=10.145.56.25
Make and Model:  HP LaserJet 4250 PostscriptBN (recommended)
```

(The tool will automatically pick them when when given the device ip address 10.145.56.25)

Setting up TYKS Email on Thunderbird

To connect to the TYKS Email, use the following configuration:

```
Your name:     [Full Name]
Email address: [full.name@tyks.fi]
Password:      [workstation password]

Incoming: IMAP outlookws.vsshp.net Port: 143  SSL: STARTTLS  Authentication: NTLM
Outgoing: SMTP atms03.vsshp.net    Port: 587  SSL: STARTTLS  Authentication: Normal password

Username Incoming: WORKSTATIONUSER (no domain)  Outgoing: WORKSTATIONUSER (no domain)
```