

# Resources for remote & collaborative work

M1 Mosig  
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# Foreword

- Do not underestimate the (performance and stability) benefits of wired networking (at IM2AG and at home)
- If you do not have a built-in Ethernet port on your laptop, consider investing in an Ethernet dongle
- Reminder: IM2AG lab rooms are equipped with (red) Ethernet cables for personal laptops

# Basic tools for remote connections (1/3)

- **Wifi access:** wifi-campus, eduroam
  - See instructions: <http://nomadisme.grenet.fr>
- **UGA VPN (Virtual Private Network)** - <https://vpn.grenet.fr>
  - May be required for accessing some of the University services (from wifi-campus and from home)
  - Warning: the VPN redirects all your traffic through the UGA servers
- **For Windows and macOS:**
  - Use the *Cisco AnyConnect* client – See instructions on the above page
- **For Linux:**
  - Instead of using the Cisco client, we recommend using the *openconnect* client of your Linux distribution
  - Install the following packages: `openconnect`, `network-manager-openconnect`, `network-manager-openconnect-gnome`
  - (In the Gnome desktop GUI), go to Settings → Network → VPN → Identity and enter the following settings:
    - VPN protocol: `Cisco AnyConnect` or `openconnect`
    - Gateway: `vpn.grenet.fr`

# Basic tools for remote connections (2/3)

- **SSH**
  - Useful for many purposes, such as:
    - Getting a shell access on a remote machine
    - Executing commands on a remote machine
    - Moving files to and from a remote machine: sftp, scp, sshfs (transparent access on Linux)
    - Making distributed applications work despite firewalls, proxy servers, etc.
  - Already installed on your machine (Windows, Linux or Mac OS) (but must be configured for smooth usage)
  - Some links/docs:
    - <https://www.digitalocean.com/community/tutorials/ssh-essentials-working-with-ssh-servers-clients-and-keys>
    - [https://support.suso.com/supki/SSH\\_Tutorial\\_for\\_Linux](https://support.suso.com/supki/SSH_Tutorial_for_Linux)

# Basic tools for remote connections (3/3)

- **tmux**
  - Terminal multiplexer, providing the following features:
    - Accessing multiple terminal sessions simultaneously in a single window
    - Detaching processes from their controlling terminals, allowing remote sessions to remain active (despite even brutal disconnections)
  - Easy to install via your Linux package manager
  - Some links:
    - <https://tmuxguide.readthedocs.io/en/latest/index.html>
    - <https://www.hamvocke.com/blog/a-quick-and-easy-guide-to-tmux/>
- (or « screen », an ancestor of tmux)

# Dealing with coding projects

- Gitlab instance provided by Ensimag (only accessible with the VPN of GrenobleINP)
  - <https://gitlab.ensimag.fr>
- Gitlab instance provided by UGA (GRICAD) – **Warning:** very limited quotas for students
  - <https://gricad-gitlab.univ-grenoble-alpes.fr/>
- Fallback solutions (outside of UGA)
  - **Gitlab.com**
  - Github.com
  - Bitbucket.com
- **Warning:**
  - In any case, avoid leaving/granting public/open access to your graded projects (code and documents) for M1 Mosig
  - Otherwise, **you may be held jointly responsible in case of plagiarism**

# Moodle Pedagogical platform (1/2)

- **We will use the Moodle instance hosted at UFR IM2AG**
  - <https://im2ag-moodle.univ-grenoble-alpes.fr/course/index.php?categoryid=78>
  - **Will be used (at least as entry point) for all the M1 Mosig courses (and more generally, all the courses at UFR IM2AG)**
  - Most courses will also use Moodle to host a forum and/or documents
  - M1 Mosig "News and discussions" page
    - <https://im2ag-moodle.univ-grenoble-alpes.fr/enrol/index.php?id=482>
    - Forum for news and Q&A
    - **Will soon be used as primary means for interactions (news and questions/answers) with the class**

# Moodle Pedagogical platform (2/2)

- **A warning about Moodle forums:**

- Such forums are very useful for detailed and non-urgent discussions. Nonetheless, there are some shortcomings:

- New posts may not always appear immediately (~30 minutes)
- Email notifications (regarding new messages/answers) may not always be sent

- Consequences:

- Check regularly (at least daily)
- May not be a good fit for "synchronous" interactions - Prefer chat services instead



# Microsoft Office 365

- Cloud-based version of Microsoft applications
- UGA has a global license (for students and staff)
- **Gives you access to a number of services, including:**
  - Online version of Microsoft desktop suite (Word, Excel, Powerpoint ...)
  - Teams (Video/audio conferencing, chat ...) (to be confirmed)
  - OneDrive (Cloud storage like Dropbox) (to be confirmed)
- **How to connect:**
  - Should work (at least) with the following web browsers: Chrome/Chromium, MS Edge, Firefox
  - Go to <https://www.office.com>
  - And use the following login: `your_uga_login@azure.univ-grenoble-alpes.fr`

# Sharing large files

- Renater FileSender
  - <https://filesender.renater.fr/>
  - Using your UGA account
  - Via web interface
  - Up to 100 GB
  - Retention up to 30 days
  - Files can be encrypted (client-side) if necessary

# Visio/audio-conferencing solutions

- **Within UGA** (authentication via you UGA account):
  - **BBB ("Big Blue Button")**
    - <https://meet.univ-grenoble-alpes.fr/>
    - Web-based (also works in mobile browser)
    - Moodle integration
    - Supports recording
  - **Zoom**
    - <https://univ-grenoble-alpes-fr.zoom.us/>
    - Web-based or standalone application (+ mobile app)
    - Moodle integration
    - Supports recording
  - **Microsoft Teams** (via Office 365) – to be confirmed
    - Web-based or standalone application (+ mobile app)
- **Outside UGA** (fallback solutions):
  - **Warning:** These solutions may not work on UGA networks (firewalls)
  - **Jitsi**
    - Web-based (or mobile app)
    - ~~No account needed~~
    - choose the room name (in advance is OK, several times is OK too)
    - <https://meet.jit.si>
  - Whereby.com (warning: 4 persons max)
  - Skype
  - Discord
  - ...

Almost all of the above solutions should in principle:

- work for small-scale meetings(2-3 persons) as well as large-scale meetings (30-50 persons)
- support screen sharing

# Mattermost (1/2)

- A (persistent) chat service (like Slack)
- Hosted by the University (UFR IM2AG instance) :
  - <https://im2ag-tchat.univ-grenoble-alpes.fr/>
- Accessible via your university account
- Available as a web-based application, and also as a dedicated application (for desktop/laptop and smartphones)
- Will be used by the teachers to interact with you.
- Can also be used for discussions (related to courses/Mosig) between students

# Mattermost (2/2)

- For M1 Mosig:
  - There will be a Mattermost "team" named "m1-2324"
    - <https://im2ag-tchat.univ-grenoble-alpes.fr/m1-2324/>
  - In this team, there will be several "channels":
    - A general channel to interact with the M1 Mosig supervisors
    - One channel per course, to interact with the course teachers (and possibly also for discussions between students)
    - Warning: this team will be shared with other M1 programs (because some courses are shared) so some of the channels will not be useful/meaningful to you (and may be in French)
  - We will soon send you instructions (via Moodle) regarding your registration on the Mattermost server/team
    - **Once you are registered, make sure to subscribe to all the channels that are relevant for you.**

# Other chat services

- Built-in in most of the previously-mentioned visioconferencing platforms
  - Warning: chat sessions are not always persistent/archived (or not for a very long time)
  - So they are only useful for ephemeral interactions.
- Available as a Moodle plugin in some courses

# Collaborative edition of documents

- For Office documents (and related formats):
  - Office 365 (edition requires internet access)
- For text-based documents (LaTeX, raw text, html, markdown, rst, org-mode ...):
  - Via a Git repository
  - Allows offline edition and transient or low bandwidth internet
- For collaborative note taking in meetings:
  - Etherpad UGA: <http://pads.univ-grenoble-alpes.fr>
- Outside of UGA (fallback solutions):
  - Google Drive/Documents
  - Other Git-based platforms (gitlab.com, github.com, ...)
  - For LaTeX (requires internet access):
    - Overleaf (<https://www.overleaf.com>)
    - Papeeria (<https://papeeria.com>)

# Tools for interactive work sessions on code (for code walkthrough / pair programming / debugging ...)

All the tools listed below are cross-platform (Linux, Mac, Windows)

- **tmate**

- Terminal sharing (work with all text-only capable editor: vim, emacs, nano, joe ...)
- Via SSH or web-browser
- In read-write or read-only mode
- Based on tmux
- <https://tmate.io>
- Easy to set up

- **VSCode editor – "Live Share" extension**

- Requires Github or Microsoft account
- <https://visualstudio.microsoft.com/fr/services/live-share/>
- <https://marketplace.visualstudio.com/items?itemName=MS-vsliveshare.vsliveshare>
- Guests can also access the code from a web browser:
  - <https://docs.microsoft.com/en-us/visualstudio/liveshare/quickstart/browser-join#>



# Wiki of the UFR IM2AG IT department

- <https://im2ag-wiki.univ-grenoble-alpes.fr/doku.php>
- Documentation and tutorials
- Technical details
- Help desk
- Links to other tools and services
- Unfortunately, mostly in French for the moment (but the staff, teachers and your classmates are here to help)