



SINT Srl

ENGINEERING CONSULTING AND SOFTWARE

XGSLab™

SCIENCE FOR ENGINEERING

THE STATE OF THE ART OF THE
ELECTROMAGNETIC SIMULATION FOR
POWER SYSTEMS, GROUNDING,
INTERFERENCE AND LIGHTNING

FAQ



ELECTROMAGNETIC SIMULATION FOR
POWER SYSTEMS, GROUNDING, INTERFERENCE AND LIGHTNING

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FAQ (Frequently Asked Questions)

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The software described in this document is delivered under license agreement.

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Possession or use of the XGSLab software is authorized only pursuant to a valid written license agreement from SINT Srl.

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REVISION RECORD

Date	Release	Note
October 2012	4.0	New module GSA
September 2014	5.0	New module GSA_FD
March 2015	6.0	New module XGSA_FD
March 2017	7.0	New module XGSA_TD
July 2017	8.0	Multilayer Soil Model
November 2017	8.1	IEC Standard
February 2018	8.2	Low Frequency Breakdown Solution + Draw Tools
April 2018	8.3	Higher Robustness Calculation Algorithms + Graphical Outputs
February 2019	9.0	New module NETS
June 2019	9.1	Zig-Zag Transformer + Pipe Type Cable + Fragmentation Rules
September 2019	9.2	XGSA_TD extended to 100 MHz + Corona Effect Tool
November 2019	9.3	General improvements
March 2020	9.4	Increasing in computing speed + Imperial Units
July 2020	9.5	Soil Seasonal Analysis + Export to Google Earth™
February 2021	9.6	Libraries refactoring + New viewer based on OpenGL
September 2021	10.0	New module SHIELD + New CAD based on OpenGL
May 2022	10.1	Screened Conductors + Multicores Cables
December 2022	10.2	New Scheduling Tool + Unlimited Elements number
June 2023	10.3	Electromagnetic Forces + Surge Protective Devices
June 2024	2024.1	New Vector Graphic Interface + Code refactoring
April 2025	2025.1	New Multiarea Calculation + Code refactoring

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1. PURCHASING FAQ

Get more information about ordering, payments, and product delivery.

1.1 HOW CAN I HAVE A QUOTE AND PLACE AN ORDER?

XGSLab includes many modules and each module is available with several profiles. For these reasons, it is important asking for a customized offer to sales@xgslab.com. The offer will include instructions useful to take the order.

1.2 IS XGSLAB AVAILABLE AS ANNUAL SUBSCRIPTION?

XGSLab is available as Annual Subscription and formally Perpetual license (10 years after last support expiration date). In the future the Annual Subscription will be the preferred license form.

1.3 CAN I UPDATE MY LICENSE XGSLAB FROM AN OLD VERSION TO THE LATEST ONE?

It is possible to update a license only within the expiration period for both options, subscription or purchase. New versions are available on our helpdesk, and only during subscription or support validity period our helpdesk will be accessible.

1.4 CAN I UPGRADE MY LICENSE XGSLAB TO A HIGHER PRODUCT EDITION?

It is possible to upgrade a license in any time. In case of annual subscription within the expiration period the cost of the residual period of the license before upgrading will be subtracted. In case of purchase the new support expiration will be 1 year after upgrade and will be valid also for license before upgrading. The cost for the support extension of the license before upgrading must be added to the cost of the upgrade.

1.5 WHEN DOES MY XGSLAB LICENSE EXPIRE IF I DON'T RENEW IT?

For subscription-based licenses, you can use the license until the subscription period ends. For purchased licenses, the license is effectively perpetual, although it's important to note that in the context of software programs, nothing truly lasts forever. In the case of XGSLab, "perpetual" means the program can be used for 10 years after the last support expiration. During these 10 years, in case of no updating, some malfunctioning due to software obsolescence may occur. It's reasonable to assume that after 10 years without updates, XGSLab may become obsolete or unsupported by future operating systems and graphics technologies.

1.6 WHAT PAYMENT METHODS DO YOU ACCEPT?

We accept wire transfers and credit cards.

1.7 HOW DO I RECEIVE THE INVOICE FOR MY PURCHASE?

The invoice will be sent when payment is successfully completed (unless otherwise agreed).

1.8 DO YOU ACCEPT PURCHASE ORDERS?

Yes, we do.

We accept purchase orders from existing customers.

Purchase orders from newly registered customers are subject to a preliminary checking before acceptance.

1.9 WHAT CURRENCY DO YOU ACCEPT?

We set prices and accept payments for our products only in EUR.

1.10 HOW DO I RENEW MY SUBSCRIPTION OR SUPPORT?

You will receive a first reminder 60 days before expiration of subscription or support with costs and instructions for renewal.

You will receive a second reminder the day of expiration of subscription or support.

We strongly suggest to renew subscription or support before the expiration date.

In case of purchase, the cost for support renewal is increased of 50% if the support period has been expired for more than 6 months and by 100% if it has been expired for more than 12 months.

1.11 IS IT POSSIBLE TO AUTO-RENEW THE SUBSCRIPTION?

Auto-renewal of subscriptions is available. The auto-renewal period is virtually perpetual, you can cancel the auto-renewal by sending an email with confirmation of renewal 90 days before the expiration date.

1.12 ARE TAXES INCLUDED IN THE PRICE?

No, our prices are exclusive of any sales and import taxes.

Product prices do not include any national, state or local sales, use, value added or other taxes.

You will have to pay such taxes, if due.

1.13 ARE THERE SPECIAL OFFERS FOR RESEARCH?

Yes, XGSLab is available with a profile Research at a very special price.

The offer is limited to qualified academic, government and non-profit organizations and the only non-commercial use of the software is allowed. A certification is required to determine if the special price is applicable.

1.14 ARE TRAINING COURSE AVAILABLE FOR XGSLAB?

XGSLab Academy offers beginner and master training courses.

Training courses are suggested in case of beginner users or advanced modules.

Training Courses are structured according to the XGSLab modules.

Training Courses are in English language, recorded and available for 7 days on a specific web platform.

Multiple people can participate in the courses for multiple times but not contemporary from different devices and within the availability period.

XGSLab Academy offers also certified training courses.

Certified training courses are suggested when a formal certification on the use of XGSLab software is required.

Certified Training Courses are structured according to 3 levels:

- Level 1 (Preliminary + Grounding + Fault Current Distribution): modules GSA + GSA_FD + NETS
- Level 2 (Electromagnetic Fields, Interference and Forces + Lightning and Transients + Lightning Shielding): modules: XGSA_FD + XGSA_TD + NETS + SHIELD + SHIELD_A
- Level 3 (Advanced Applications and Knowledge): ALL modules

Trainings Courses are in English language, recorded and available for 30 days on a specific web platform.

Multiple people can participate in the courses for multiple times but not contemporary from different devices and within the availability period.

XGSLab Academy offers also custom training courses.

Custom Training Courses should be considered only for issues not treated by beginner and master training courses.

Custom Training Courses are reserved for XGSLab clients and refer to specific topics requested by clients.

Custom Training Courses are live and web based, in English language, and arranged via TEAMS or equivalent tools with shared screen and active camera.

No certificate of attendance will be issued.

For a customized offer ask to sales@xgslab.com.

1.15 CAN I HAVE A DEMO VERSION?

Demo version is useful for Users familiar with similar tools.

The demo is based on a temporary license.

This license is FULL, so you will be able to test even modules other than those that interest you immediately.

The demo is protected by a software key and the program will be installed on your PC.

The demo experience is exactly the same of the license you will purchase.

For all these reasons, we can send a demo only after the customer has received an offer and that it is in line with their expectations.

1.16 CAN I HAVE A WEB BASED PRESENTATION?

According to our experience a web-based presentation can be more effective than a demo in showing XGSLab features in a short time when potential client is not familiar with similar tools.

It is possible to ask for a web presentation to our Customer Service at sales@xgslab.com.

2. LICENSING FAQ

Get more information about license profile.

2.1 HOW IS XGSLAB DELIVERED?

The software and its documents are delivered electronically only.

If the software is protected by a software key there are no physical shipment.

If the software is protected by a hardware key, the hard lock will be delivered via courier.

2.2 DOES XGSLAB REQUIRE A PROTECTION KEY?

Yes, XGSLab requires a protection key.

The single user versions of XGSLab are protected with a software or hardware key.

The network versions of XGSLab are protected only with a software key.

The software key is sent via email. Delivery time is usually in the range 1 – 2 working days.

The hardware key is shipped via courier. Delivery time is usually in the range 1 – 4 working days.

In the future hardware keys will become obsolete and the software keys will be the preferred protection form.

2.3 HOW DO I OBTAIN MY CREDENTIALS FOR DOWNLOAD THE SOFTWARE?

After placing the order, you will receive a welcome mail with download credentials, expiration date and software download instructions.

The program can be downloaded from our helpdesk web site. Download credentials are usually sent in 1 – 2 working days.

All deadlines refer to the purchase order date.

2.4 DOES XGSLAB CAN BE USED IN REMOTE WAY?

We do not introduce limitations in using XGSLab in remote way using a VPN (Virtual Private Network) and Virtual Desktop but this use is possible only with a network key.

Stand-alone keys do not allow this use and in this case, the following error message appear.

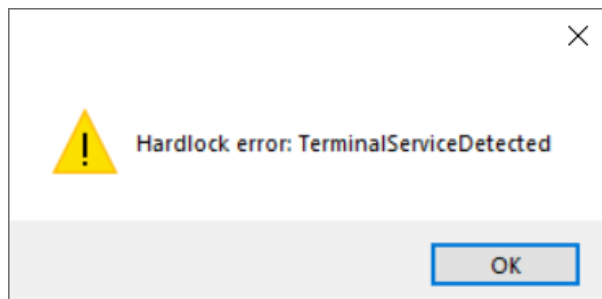


Figure 2-1: Error message in case of use of stand-alone key in remote way

2.5 CAN I ACTIVATE XGSLAB ON A MACHINE WITHOUT AN INTERNET CONNECTION?

Yes, this is possible.

2.6 DO YOU COLLECT ANY PERSONAL INFORMATION DURING ACTIVATION?

XGSLab tracks user login and logout events for administrative and security purposes. By using XGSLab, the Licensee consents to the transmission and recording of login and logout data to our remote server. This information is used to monitor software usage, ensure licensing compliance.

We prioritize User privacy and want to provide transparency regarding data collection. This software solely collects data as indicated in previous point. We do not share or sell login data to any third parties.

2.7 CAN I INSTALL XGSLAB ON MORE THAN ONE MACHINE?

In case of single user software key, the program can run only on the PC where the software is installed.

In case of single user hardware key, the program can be installed in an arbitrary number of PCs but it will run only on the PC where the key is plugged.

In case of network software key, the program can run and then can be installed on any PC connected to the local network where the key is installed. The number of concurrent Users depend on the specific license profile.

2.8 WHAT ARE THE XGSLAB HARDWARE AND SOFTWARE REQUIREMENTS?

XGSLab is designed to operate on a personal computer (PC) having the following software and hardware requirements.

Software requirements:

- Operating system: MS Windows® 8 or later (Windows® 10 or 11 are anyway suggested)
- Microsoft® .NET Framework 4.8.1 required
- Graphics driver required:
 - Direct3D 11 feature level 9_3 (feature level 10_1 recommended)
 - OpenGL 2.0 (ver. 3.0 recommended)

XGSLab can works also on MacOS operating systems using virtual machine with MS Windows® installed.

This option is not common and requires some precautions.

License requirements: the license service can be installed in Windows OS but also in a virtual machine (VM), like VMWare, Azure Cloud or VirtualBox. In case of VM the only requirement is a Windows OS, the recent one is suggested.

Recommended Hardware requirements:

- CPU: Intel Core i5 for basic license profiles, Core i7, multi-core or more for higher license profiles
- Clock frequency: 3.2 GHz or more for higher versions
- Platform: 64-bit
- RAM: depending on module and maximum elements or cells number (see below)
- Hard Drive: 1 GB free space
- Monitor resolution: 1280x1024 pixels, 1920x1080 pixels (full HD) or more
- Port for hardware protection key: USB 2.0 or USB 3.0

Starting from XGSLab 2024.1, the software relies more and more on 3D graphic. For this reason, a dedicated GPU is recommended to be installed in the machine in place of a sole integrated graphic card.

The entire calculation process runs on the CPU and does not use any GPU features. XGSLab uses multithreading thus enabling some processes to be executed in parallel. This offers visible advantages in the calculation performance, at least with a thread number (or logical processors number) up to a certain limit.

Typical scientific workloads with small to medium problems (as in XGSLab) often saturate at 16 – 32 threads as shown in the figure below.

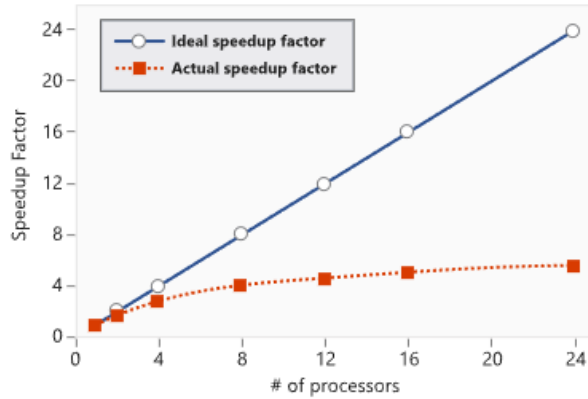


Figure 2-2: Speedup Factor as a function of Thread Number

Essentially, it is important to remember the following simple rules:

- The calculation speed always grows with the clock frequency;
- The calculation speed grows less than linearly with threads number and tends to saturate when the number of threads exceeds around 16 – 32 threads.

It follows that is preferable to have a limited number of threads but with a higher clock frequency.

Eventually, we also recall that modern multi-core CPUs dynamically adjust clock speeds based on workload, power limits, and thermal conditions. When multithreading is utilized, core frequencies often drop due to power and thermal constraints, as the CPU distributes its power budget across multiple cores.

For the *GSA* modules, the suggested RAM requirements depend on the module, calculation mode and elements number as in the following figure.

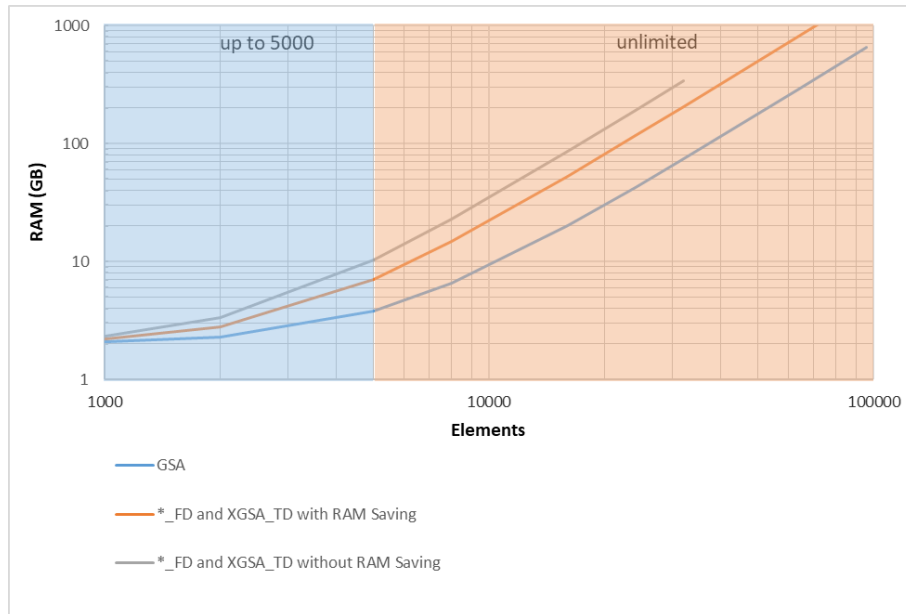


Figure 2-3: RAM requirements (note the log-log scale)

Concerning the module NETS, the suggested RAM requirements is at least 4 GB for models with up to 50 cells depending on cells number for models with more than 50 cells (for instance about 8 GB for 1000 cells with 4+4 ports).

Previous requirements are evaluated by taking into account about 2 GB RAM for the operating system and other basic applications and without using virtual memory RAM resources (HDD). As a general rule, before starting calculations with a large number of elements or cells, close unused applications to free up the available RAM.

2.9 DOES XGSLAB CAN WORKS ON WINDOWS 64 BIT?

Starting from version 10.1, XGSLab is distributed only as 64 bit.

The 64 bit version is fast in calculation and it can manage all available memory.

2.10 WHAT IS XGSLAB THE WARRANTY PERIOD?

Like all purchasable software, we do not provide any warranty.

In essence, we provide the software -as is-.

To be absolutely certain of what we do or do not provide, please refer to the EULA (End User License Agreement).

2.11 WHAT CAN I DO IF I NEED A LICENSE FOR AN OLD VERSION OF XGSLAB?

Only last and penultimate version of XGSLab are available for download.

Clients who do not intend to renew the support service must save a copy of the latest downloaded version.

2.12 DOES XGSLAB INCLUDES A SUPPORT AND MAINTENANCE SERVICE?

XGSLab includes 12 months of support period.

Support service includes software update and maintenance support and Regular Engineering Applications support.

Software update and maintenance support includes new release, software patches and installation support.

Regular Engineering Applications support includes advice on how best to apply XGSLab to specific engineering problem. Support requests are normally processed within 2 business days. Support is not available on Saturday and Sunday and during local National holydays. Moreover, Support will be limited during the Christmas period and the two central weeks of August due to Summer holydays.

Support requests must be addressed to the ticketing system available on the xgslab.com site. Support via phone, or chat is not provided.

The support period may be renewed on an annual basis for periods of 1, 2 or 3 years. Support is included in Annual Subscriptions during the validity period.

2.13 HOW ARE BUGS HANDLED AND FIXED?

Bugs can be notified by Users by using the ticketing system available on the xgslab.com site.

It is important to add in email content screenshots and any other useful information and when possible the “xgslab” file. About bugs fixing, there are no general rules, it depends on the severity of the issue, whether there is a temporary workaround, etc. In most cases, you will be able to get a software patch from our support team. Sometimes, there is no possibility of a software patch, and you will have to wait for the next release.