OPAL-RT

Introducing the Next Generation of SPS Software at OPAL-RT

The OPAL-RT SPS Software is the next evolution of SimPowerSystems. It delivers improved performance, updated capabilities, and ongoing support for current MATLAB releases, while preserving the familiar workflows you rely on today.

SPS is now part of the OPAL-RT real-time simulation ecosystem, providing clearer naming, dedicated support, and a defined path for where the technology is headed.

This guide walks you through the migration process step by step, so you can install, activate, and confidently switch to the new SPS Software with minimal friction.

SPS has evolved to:

- Stay fully compatible with the latest MATLAB releases
- Offer a more consistent and supported experience for modeling and simulation
- Provide a smoother licensing and activation process

The new SPS offers:

- More stable simulations, backed by 100+ non-regression tests
- Improved performance across common power and electrical system models
- A cleaner, more predictable installation and toolbox structure
- More transparent licensing and easier login management
- Simple version selection when working with both legacy and new SPS
- Access to updated examples and documentation
- Broader integration possibilities, including ARTEMiS and other modern workflows

SPS continues to evolve toward higher performance, broader integration options, and scalable real-time testing, including ARTEMiS, cloud workflows, Python, and Modelica.

Step-by-Step Migration

To transition to the new SPS, you'll follow these five steps:

AT A GLANCE:

1. Set up or reset your SPS password
2. Download the latest SPS toolbox
3. Install SPS in MATLAB
4. Log in to SPS to authenticate your license
5. Choose which SPS version you want to use

SPS Software

Step 1

Set Up or Reset Your SPS Password

When you open SPS in MATLAB for the first time, you'll be asked for your username and password. These credentials are linked to your SPS license.

TO SET YOUR PASSWORD:

1. Visit the OPAL-RT License Portal: https://opalrt.customer.cryptlex.com/
2. Click "Forgot password?"
3. Enter your email address
4. Open the reset email
5. Create your new password

Tip: If multiple people in your organization need access, OPAL-RT can assign additional licenses.

Step 2

Download the SPS Toolbox

After setting your password, sign in to the License Portal and download the latest SPS .mltbx file from the release page.

Step 3

Install SPS in MATLAB

TO INSTALL THE NEW SPS TOOLBOX:

1. Save the .mltbx file to your computer
2. Open MATLAB
3. Click Open in the MATLAB toolbar
4. Select the .mltbx file
5. MATLAB will launch the Add-On installer
6. Confirm installation under:
7. Home → Add-Ons → Manage Add-Ons

Tip: The toolbox installs only in the MATLAB version you open it with.

SPS Software

Step 4

Log in to SPS

To validate your license inside MATLAB, open any SPS model (your own or an example) and click Run. A login window will appear where you enter the email and password associated with your SPS account. SPS will validate your license and complete the registration.

If you want to use an example model instead of your own you can open any built-in SPS example using a simple command.

- **In the MATLAB Command Window, type:**
  sps_open_example('model_name')
- **For example, to open the Boost Converter model:**
  sps_open_example('boost_converter')

After the model opens, click Run and you'll be prompted to log in.

Tip: You can replace 'boost_converter' with the name of any other example in the SPS documentation.

Step 5

Choose Your SPS Version

MATLAB R2024b, R2025a, and R2025b allow you to keep both the legacy and new SPS versions installed. Only one version can be active at a time.

To choose your version: **sps_select_version**

A dialog will appear where you can select:

- Legacy SimPowerSystems, or
- OPAL-RT SPS Software

Tip: You can also save your selection so MATLAB loads the same version every time.

Once you choose which version of SPS you want to use, MATLAB will load that version for the remainder of your session. From there, you can:

- Open and run your existing models
- Build new models using the active SPS version
- Open any example models included with SPS
- Switch versions again at any time if needed
- Confirm which version is active by running the **sps_version** command

Your setup is now complete! You can start modeling immediately using the version of SPS you selected!

SPS Software

SimPowerSystems vs. OPAL-RT SPS Software

SPS is validated through extensive non-regression testing, used across academic and industrial labs, and delivers predictable behavior under real-time load (including ARTEMiS).

Below is a complete overview of how features compare between the legacy SimPowerSystems version and the new OPAL-RT SPS Software.

Category	SimPowerSystems (Legacy)	OPAL-RT SPS Software	What This Means for You
Overall Workflow	Simulink-based electrical modeling	Same workflow, same structure	You don't need to relearn your workflow. Models look and behave the same.
Feature Set	Full library of SPS blocks	All features preserved except Machine Initialization	No impact on typical modeling. Only one outdated feature was removed.
Solver & Performance	Legacy performance	Improved stability and speed (validated by 100+ regression tests)	Faster, more stable simulations with no workflow changes.
Licensing	MathWorks-managed	OPAL-RT License Portal (Cryptlex)	Clearer, more transparent license management.
Installation	Bundled with Simscape Electrical Specialized Power Systems	Installed as a MATLAB Toolbox (.mltbx)	Simpler installation and version control.
Version Switching	Legacy only	Switch between legacy + new SPS with sps_select_version	You can choose which version to run at any time.
MATLAB Compatibility	Compatible through prior SimPowerSystems releases	Supports MATLAB R2024b, R2025a, R2025b	SPS remains supported on current releases.
Model Compatibility	Legacy model formats	100% forward and backward compatible	Models open across versions without changes.

Need Help?

If you run into issues during installation, licensing, or version switching, the OPAL-RT support team is here to help!

ADDITIONAL USEFUL LINKS:

1. OPAL-RT License Portal
2. OPAL-RT Support Center

SPS Software