

# RT-LAB

## Quick Start Guide for OP4200

Thank you for choosing RT-LAB as your real-time simulation platform.

This *Quick Start Guide* will guide you through the first steps in achieving real-time and closed-loop simulation, while providing explanations to get you started.

## CONTENTS

RT-LAB QUICKSTART GUIDE	11
INSTALLING MATLAB™ AND SIMULINK TOOLBOXES	11
INSTALLING RT-LAB SOFTWARE	11
VALIDATING THE INSTALLATION	12
STARTING RT-LAB	12
CONNECTING YOUR REAL-TIME SIMULATOR	14
CONNECTING DIRECTLY	14
CHANGING THE SIMULATOR IP ADDRESS	14
USING RT-LAB	17
Toolbar	17
CREATE YOUR FIRST PROJECT	19
USING YOUR INTEGRATION MODEL WITH I/OS	25
TROUBLESHOOTING	32
RT-LAB IS NOT AVAILABLE IN MATLAB™	32
My simulator is not detected by RT-LAB	32
I NEED A LICENSE FOR MY SIMULATOR	32
CONTACT AND SUPPORT	33
Resources	33

## SYMBOL DEFINITIONS

The following table lists the symbols used in this document to denote certain conditions:

Symbol	Definition
6	ATTENTION: Identifies information that requires special consideration
	TIP: Identifies advice or hints for the user, often in terms of performing a task
Ē	REFERENCE _ INTERNAL: Identifies an additional source of information within the bookset.
CAUTION	Indicates a situation which, if not avoided, may result in equipment or work (data) on the system being damaged or lost, or may result in the inability to properly operate the process.
	Indicates a situation where users must observe precautions for handling electrostatic sensitive devices.
	CAUTION: Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.
	WARNING: Indicates a potentially hazardous situation which, if not avoided, could result in serious injury or death.

## SOFTWARE

### SOFTWARE REQUIREMENTS

The following software must be installed and functioning to perform the tests described in this document. Confirm that the required software is installed and test to ensure they are functioning properly.

#### **RECOMMENDED OPERATING SYSTEM**

Microsoft Windows 7 64bits Version 6.1 (Build 7601: Service Pack 1)

OPAL-RT COMPONENTS

Software	Version
RT-LAB	Version 11.1.1 and up (RT-LAB 2017)
eFPGAsim (optional)	Version 1.5.0 and up
RT-XSG (optional)	Version 3.1.2 (Xilinx Zynq, 7 series) Version 2.3.5 (Xilinx 6 series)

#### THIRD-PARTY COMPONENTS

\* Type >> ver on the Matlab prompt and verify that you have the following toolboxes (or later versions of them) installed.

Software	Matlab Version Compatibility
MATLAB* (Simulink, Simulink Coder)	(2011b, R2012b, R2013a, R2014b or R2015a SP1)

#### LICENSED RT-LAB COMPONENTS

You must have licenses for the following RT-LAB components to run the examples provided in this document. Verify with your sales representative that your system includes these licenses.

- RTLAB\_RT
- RTLAB\_XHP
- RTLAB\_DEV
- RTLAB\_NUM\_CORES >= 1
- RTE\_NUM\_CORES >= 1 XSG\_EHS

### MATLAB<sup>™</sup> AND SIMULINK TOOLBOXES

Before you begin your RT-LAB installation, make sure that MATLAB is installed, with the following MATHWORKS toolboxes :

- 1. MATLAB<sup>™</sup> with the following toolboxes from MathWorks (see the MATLAB Compatibility tables in the Installation Guide to verify what version of MATLAB is compatible with your RT-LAB):
  - Simulink
  - Simulink Coder
  - SimPowerSystems (only for electrical simulations)

## **INSTALLING RT-LAB ON YOUR WINDOWS COMPUTER**

If RT-LAB is not already installed on your computer, use the installation files provided on the DVD included with your delivery:

- 1. Insert the DVD into your computer's reader.
- 2. Wait for the Setup Wizard to open. If the Wizard fails to start automatically, browse the contents of the disk and run Setup/Setup. exe. (You will need administrator privileges.)
- 3. Follow the on-screen instructions to go through the installation process. There are several screens (up to 12) in the Wizard installation process, each one requires an interaction.
- 4. Please wait while RT-LAB is installed. This will only take a few minutes.
- 5. Once RT-LAB has been installed on your computer, click Finish to close the Wizard.



Figure 1: Setup Wizard

#### Validating the Installation

For validation, we recommend that you verify that all toolboxes have been installed in MATLAB™.

- 1. Open MATLAB<sup>™</sup>.
- 2. In the main page Command Window, type "ver" in the command line.

📣 MATLAB R2013a					
HOME PLOTS	APPS				
New New Open Compare Script	Import Save Data Workspace View Clear Workspace	Analyze Code	O Preferences     O     Layout Set Path     Help	<sup>2</sup> Community <sup>2</sup> Request Support <sup>2</sup> Add-Ons ▼ <sup>2</sup>	
FILE	VARIABLE	CODE SIMULINK	ENVIRONMENT	RESOURCES	
🗢 🔶 🔄 🔀 👃 🕨 C:					
Current Folder	Command Wind	ndow			۲
🗅 Name 🛎	ft >> ver				

- 3. The list of installed OPAL-RT toolboxes should include the following (only RT-LAB is mandatory. Other toolboxes may be required and depend on your licence):
  - RT-LAB
  - eFPGAsim (optional)
  - RT-XSG (optional)

If any of these toolboxes are missing, refer to the troubleshooting section towards the end of this document to install them manually.

## **STARTING RT-LAB**

Double-click the RT-LAB shortcut on your Desktop to launch the RT-LAB interface. The Workspace Launcher window prompts you to select a workspace (the workspace is the directory where RT-LAB will store all the files required for your simulations). We recommend you create a new and empty directory, as this will help you understand the exercises in this guide.



Figure 2: Selecting a workspace

Click the OK button and wait for the Welcome page to appear.

The Welcome page provides quick access to tutorials and documentation. Click **Go to the workbench** to open the main RT-LAB window (you can access the Welcome page at any time from the Help menu.)



Figure 3: Welcome Page

RT-LAB is now ready to create and run real-time simulations.

## CONNECTING YOUR REAL-TIME SIMULATOR

It is now time to unpack your OP4200 real-time simulator (also called "target" in this document).

For the first connection, to configure your target, we recommend that you have your IT department set up your simulator's IP address and ensure that the firewall will not interfere with or block RT-LAB.

Consult the Installation Guide for additional details (C:\OPAL-RT\RT-LAB\versionxx.x\help\pdf\RT-LAB\_ IG.pdf (example assumes that RT-LAB was installed on the C drive of your computer).

## **USING RT-LAB**

Before using RT-LAB, you must configure the target. This section describes the basic tools and steps to setup RT-LAB and run a sample model.

#### Toolbar

In addition to the standard menu items, RT-LAB provides a toolbar of quick access buttons to do many of the tasks in one click:

🗟 🔻 🧔 🜔 🕩 🕕
-------------

Button	Name	Description
010	Build	Build (compile) a model or manages build configurations.
<b>4</b>	Assign	Opens the Assignation page of a model editor.
O	Load	Loads a model.
	Execute	Starts the execution of a model.
00	Pause	Pauses the execution of a model.
	Reset	Stops the execution of a model.

#### Software Connecting your real-time simulator

In the Project Explorer, double-click "Double-click to discover new targets"; this process may take some time. Once RT-LAB detects targets, the **Detected RT-LAB Targets** window appears. Select the target you want to use and click Finish





Edit the name assigned to your simulator (in the Overview window), as desired, and click Finish.



Your simulator is now available in the RT-LAB interface.

## **CREATE YOUR FIRST PROJECT**

#### STEP 1. Create a new project based on an example model

- 1. In the RT-LAB Project Explorer, double-click "Create a new project..."
- 2. Name your project (e.g. "My first Project") then click Next.

🥪 RT-LAB	the is the R and D R R	Contract of the local sectors
File Edit Navigate Search Simulation Run T	ools Window Help	
🖬 ▾ 🗑   🖄   ħ ▾ 🤤 🗘 🕨 🗉 🗃 🗑 ▾   ┩	· ▼   🗠 🛍   💐 ▼ 🎕 ▼   🖋 ▼	
Project Explorer 🛛 🗖 🗖	📕 MySimulator 🕴 📕 localhost	
a 🎝 Targets	New RT-LAB Project	
MySimulator <rt-l 6="" installed="" no=""></rt-l>	RT-LAB Project	ns
The Create of New project	Create a new RT-LAB project. This project can be generated from a template.	own or <u>Reboot</u> this target.
		te a <u>Python script</u> on this target.
	Project name: My first project	te a custom command
	Vse default location	the shared memories.
	Location: C:\Users\deniselefebvre\OPAL-RT\RT-LABv11_Workspace\My first pr Browse	the core dumps.
	Project description:	
	Working sets	
	Add project to working sets	
	Working sets: Select	
		Viewer 🐻 Monitoring
	(?) < Back Next > Finish Cancel	
🖏 Progress 🛛 🦓 🖓 🖿 🗖		
No operations to display at this time.		

#### Figure 5: Creating a new project

The next window that appears allows you to select the model for the project. Select "rtdemo1" for your first project.



Figure 6: RT-Demo1 example

- 3. Browse the model directory and select the **Basic** folder and then select "rtdemo1."
- 4. Click Finish.

Your project is now available in the Project Explorer. It contains a simple model named "rtdemo1." This model simulates a mass-spring damper mechanical system with its PID controller.

#### STEP 2. Build the model

The build process allows RT-LAB to transform the Simulink model into a full real-time simulation. This process must be repeated each time the Simulink model is modified.

- 1. In the Project Explorer window, expand the project you just created to find the "rtdemo1" model.
- 2. Drag the model onto your target. This will automatically configure your model to run on this particular target.



3. Right-click on the model, then select "Simulation / Build configurations..." This opens the build configurations window

ST-LAB		and the second s					
File Edit N	lavig	gate Search Simulation Tool	s Window H	lelp			
🗂 🕶 📾 🙋	3	) • @ 0 D 0 8 🗑 • (4	• 🔯 🌾 🖸	🔯 🗧 🔹 💩 🕶 🛷 👻			Quick Access 🔡 🖽 Edition
Project Ex	ιοlα	rer 🛛 🖂 🌭 🕻 🌣 🗝 🗖	rtdemo1	2			
4 🕹 Target	ts						<u>م</u>
₽ <sup>®</sup> My	Simu	ulator	(i) Overvi	ew 1 message detected	l.		
4 😂 Quick	Proje	ect	General Inf	Information			Preparing and Compiling
A H Mo	dels		Name	rtdemo1			Edit the model.
+ Create		New Add	•	C:/Users/deniselefebvre	OPAL-RT/RT-LABv11_Workspa	ce/QuickProject/models/rtdemo1/rtd	Set the development properties.
		Open		R13			B Combine Model.
		Edit		Not loadable <not cor<="" td=""><td>npiled&gt;</td><td>Consult result in the <u>Complication View</u></td></not>	npiled>	Consult result in the <u>Complication View</u>	
		Edit with	•			A.	Assign targets to subsystems.
	臣	Сору	Ctrl+C				Executing
	×	Delete	Delete				Set the execution properties.
		Rename	F2				Load the model.
	凶	Import	•				Execute the model.
	٢	Refresh	F5	-			E E
		Close		velopment         Execution         Variables         Files         Assignation         Diagnostic         Hardware         Simulation Tools           Properties         IIII         Compilation         Matlab         View         Console         Variables         Table         Terrable         Variable View         Variables         Variable         Variable		ostic Hardware Simulation Tools	
		Tools	÷			iewer 🐻 Monitoring 🛛 🗖 🦉 🗖	
		Simulation	•	Build	Ctrl+Alt+C		
	1	Quick Start-up project		Rebuild All			
		Properties	Alt+Enter	Build configurations.	Ctrl + Alt + A	Value	
•	-	III 🔰 🕨		G Lood	ChileAlter		
Progress	23	×		Execute	Ctrl+Alt+S		
No operatio	ons t	to display at this time		刷 Execute a single step	E		
no operati	0110			III Pause	Ctrl+Alt+P		
				Reset	CTrI+AIT+R		
				Rectore Snapshot	Ctrl+Alt+1		
					CUMPACI		
		-		4 3- Diagnostic	4 3- Diagnostic		
				> debugging			
				4 4- Development			
				> Compiler			
				> Linker			

Figure 7: Building the model

4. In the Build Configurations window, select the MATLAB version to use from the drop-down list

Build Configurations		
Matlab:	Matlab R2013A (32 Bit) (8.1)	•
Development Node: on OPAL-RT Linux (x86-based):	MySimulator	•
Build steps:		
<ul><li>Separate model</li><li>Generate code</li></ul>		
Clean target directory		
Transfer files to target		
Retrieve Files from target		
	Select All	Deselect All
0	ОК	Cancel

#### Figure 8: Building the model

- 5. Verify that your target is set as the "Development Node." The "Development Node" is the target that RT-LAB will use to perform the build. (To set as Development node, right-click the target and select "Set as development node".)
- 6. Click "OK" then wait for the build process to complete. You can view the progress of the build in the Compilation View at the bottom of the RT-LAB interface.

#### STEP 3. Load the Model

The load process prepares the real-time target to perform the simulation.

1. Click on the Load toolbar button 💟.



Figure 9: Simulink console

#### STEP 4. Execute the Model

Executing the model starts the real-time simulation on the target.

1. Click the Execute toolbar button

#### STEP 5. Use the Console to Interact With the Simulation

The user console (Figure 9) is now receiving and sending data to the simulation. Double-click a scope

block to observe the simulation and see any changes live in the scope viewer (Figure 11).

Double-click on the "adjust reference" block <u>93.5</u> to modify the set point of the mass-springdamper system and double-click on the scope blocks to observe signals received from the simulator.







Figure 11: Observing simulation results and changes in the scope

#### STEP 6. Stop the Simulation

Stopping the simulation releases the target (makes it available for use) and allows for another simulation to be performed.

- 1. Click on the Reset toolbar button to stop the simulation  $\blacksquare$ .
- 2. Verify that the console is automatically closed. You are now ready to test your integration model.

## **USING YOUR INTEGRATION MODEL WITH I/OS**

Depending on the system you purchased, you may have received an integration model specific to your hardware configuration; it was designed to interact with the hardware included in your simulator. Each system is delivered with a special model that uses all I/Os available on your simulator.

The model used in this guide may be different from the one you received, but the general components and instructions are similar.

#### STEP 1. Create a new project based on the integration model

- 1. Double-click on "Create a new project".
- 2. Type a name for your project in the New RT-LAB Project window:
- 3. Click Next. A window opens with available project templates.

🥩 RT-LAB 2017				
File Edit Navigate Search Simulation	Tools Window Help			
<ul> <li>Project Explorer ≅</li> <li>□</li> <li>□</li> <li>↓</li> <li>↓<td>RT-LAB Project Create a new RT-LAB project. This project can be generated from a template.</td><td></td></li></ul>	RT-LAB Project Create a new RT-LAB project. This project can be generated from a template.			
🕈 Create a new project (1)	Project name: OP4200_Generic_Integration 2			
	Location: C:\Users\deniselefebvre\OPAL-RT\RT-LABv2017_Workspace\OP420	Browse		
	Project description:			
	Working sets	New		
	Working sets:	Select		
Progress      Progress      No operations to display at this	? < Back Next > Finish	Cancel		

Figure 12: Importing your integration project (1)

#### 4. Click to select IO and expand the list of available projects

New RT-LAB Project				
RT-LAB Project				
Select a template				
Available Templates:				
type filter text				
<ul> <li>Api</li> <li>Basic</li> <li>FPGAsim</li> <li>FePGAsim</li> <li>Features</li> <li>Features</li> <li>Fo</li> <li>Fo</li> <li>Simscape</li> <li>empty</li> </ul>				
?	< Back	Next >	Finish	Cancel

Figure 13: Importing your integration project (1)

🥪 New RT-LAB Project						
RT-LAB Project						
Create a new RT-LAB project. This project can be generated from a template.						
Available Templates:						
type filter text		Empty project				
▲ 🗁 Opal-RT 5		Empty project				
<ul> <li>▷ ML605-EX1</li> <li>○ OP4200</li> <li>○ OP4200_Generic_Integration</li> <li>▷ ○ OP4500-EX1</li> <li>▷ ○ OP4510-EX1</li> <li>▷ ○ OP4510-V2</li> <li>▷ ○ OP5110-5120</li> <li>▷ ○ OP5130</li> <li>▷ ○ OP5130-XSG</li> <li>▷ ○ OP5142-EX1</li> </ul>	4	Create a new empty project Use this template to generate an empty project. This is the default template used when you do not choose any template.				
? < Back	Ne	ext > Finish Cancel				

Figure 14: Importing your integration project (1)

- 5. Click on Opal-RT, then click on OP4200 and select "OP4200\_Generic\_Integration".
- 6. Click Finish to create your new integration project.

#### STEP 2. Open the model in Simulink

Select the model, then click in the Overview - Preparing and Compiling section. MATLAB™ will open with your model.

🧐 RT-LAB 2017				_ <b>-</b> ×
File Edit Navigate Search Simulation	n Tools Wind	ow Help		
	10 - <b>4</b> - 10	to[@] ● • @ • [ <i>A</i> •	Quick	Access 🛛 😰 🕞
Project Explorer S  Project Explorer S  Targets  Double-click to discover targets.  OP4200_Generic_Integration  IM Models  OP4200_Generic_Integration  Def UOS  Configuration  Create a new project.	OP4200_Generic_Integration   Overview 1 message detected			
	General Information           Name:         OP4200_Generic_Integration           Path:         C/Users/deniselefebvre/OPAL-RT/RT-LABv2017_Worksp           Matlab:         R20118           State:         Not loadable <not compiled="">           Description:         ^</not>		Preparing and Compiling  Preparing and Compiling  Edit the model.  Set the development properties.  Build the model.  Consult result in the <u>Compilation View</u> Assign targets to subsystems.  Executing	
	Overview Dev     Display	III Elopment Execution Variables Files Assignation Diagnos Properties G Compilation 📣 Matlab View 🖾 Console 3	Lega the execution poperties.     Lega the model.     Lega the model.     Lega the model.     Lega the the model.     Lega the the model.     Lega the the model.     Lega the	g ° 0
Progress 12 % * = -	No consoles to	display at this time.		2 0 • <b>2</b> •
		35	):	🍝 🔉 🖬 💠 👁

Figure 15: Editing the model

In the root layer (expand the model directory) of your Simulink model, you will find two subsystems: SM\_[name] and SC\_[name]:

SM\_ [name] stands for subsystem master. This is where all the real- time simulation will occur. This is the only subsystem that will be run on the simulator and that contains I/Os.

The SM\_[name] subsystem, contains subsystem settings that control I/Os. Depending on your system, you may see the following blocks:

- Analog input (Ain) and output blocks (Aout),
- Static digital input (Din) and output blocks (Dout),
- PWM input (PWMin) and output blocks (PWMout), and,

SC\_[name] stands for subsystem console. This will be an asynchronous subsystem that will run on your host computer and will act as a user interface. No critical mathematical logic should be included in this subsystem.

#### STEP 3. Build the model

- 1. Drag the integration model onto your target to preconfigure it.
- 2. Since you have already configured the build process, simply click the Build toolbar button and wait a few seconds while the model is compiled.



The OP4200 Integration Model assignation is automatically configured to run in XHP mode and the Execution properties are preset to Hardware Synchronized

I/O Configuration Interface

RT-LAB now offers a new feature for OP4200 I/O configuration. Because the OP4200 Integration Model I/Os are preconfigured, this section will not describe I/O configuration in detail (consult the eHS user manual for more details). However, it is a good idea to verify that the OPAL-RT Board is assigned to the appropriate SM\_subsystem (Figure 16).



Figure 16: OPAL-RT Board associated subsystem

And verify that the I/Os themselves are associated to an SM\_subsystem (Figure 17).

SRT-LAB 2017						
File Edit Navigate Search Simulation Tools Window Help						
🖻 Project Explorer 🛛 🛛 🖻 🛸 🥻 🎽 🔍 🖓	🕞 OP4200_Generic_Integration 👘 📟 OPAL-RT Boa	ard 🕞 OP4200_Generic_Integration Configuration 🛛 📃 🗖				
🔺 🝰 Targets	🗈 🖻 type filter text					
2 OP4200_SD	Data Points	Connections				
OP4200_Generic_Integration	In & Out 🔻	All Status				
A He Models b QP4200 Generic Integration -> OP4200 SD < Invalid as						
▲ P I/Os						
OPAL-RT Board -> SM_Computation	PAL-RT Board	(128)				
▶ 🖶 Slot 1 - Analog in	= E Slot 1 - Analog in	(16)				
▷	□ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □	(8)				
▷	[0]	$\Rightarrow$ OP4200_Generic_Integration/SM_Computation/Analog_In/AnalogIn_Ch00-07/In1/Value[0]				
▷ E Slot 4 - Digital out	[1]	$\Rightarrow OP4200\_Generic\_Integration/SM\_Computation/Analog\_In/AnalogIn\_Ch00-07/In1/Value[1]$				
Grate a pau project	[2]	$\Rightarrow OP4200\_Generic\_Integration/SM\_Computation/Analog\_In/AnalogIn\_Ch00-07/In1/Value[2]$				
The Create a new project	[3]	$\Rightarrow OP4200\_Generic\_Integration/SM\_Computation/Analog\_In/AnalogIn\_Ch00-07/In1/Value[3]$				
	[4]	$\Rightarrow OP4200\_Generic\_Integration/SM\_Computation/Analog\_In/AnalogIn\_Ch00-07/In1/Value[4]$				
	[5]	$\Rightarrow OP4200\_Generic\_Integration/SM\_Computation/Analog\_In/AnalogIn\_Ch00-07/In1/Value[5]$				
	[6]	$\Rightarrow$ OP4200_Generic_Integration/SM_Computation/Analog_In/AnalogIn_Ch00-07/In1/Value[6]				
	[7]	⇒ OP4200_Generic_Integration/SM_Computation/Analog_In/AnalogIn_Ch00-07/In1/Value[7]				
		(8)				
		(16)				
		(48)				
		(48)				
📆 Progress 🛛 🦹 🗸 🗖 🗖	Panels					
No operations to display at this time.						

Figure 17: I/O subsystem associations

#### STEP 4. Load and execute the model

- 1. Click the Load toolbar button 💟 and wait for the load process to be completed. This may take some time because all individual I/Os are loaded at this time. Make sure to wait until the loading process is complete.
- 2. Click on the Execute Ib button. A new console window appears.



Figure 18: Sample of possible interactions with the running model

#### STEP 5. See external I/Os

The specific I/O configurations for your simulator are provided in the "SystemDescription\_[Customer Name]\_[Project Number].pdf," document of your Integration Binder (in section B – "Mapping I/O Blocks to signal conditioning"). This is also, and most importantly, where you will find the pin assignments of each **I/O channel**.

To see external signals, you can use an oscilloscope to probe analog and digital output of the simulator. The integration model is already simulating all output signals with either a square or a sine wave signal. Note that the digital output board must be powered by an external source between 5V and 32V on the Vuser and have a ground in Vrtn pins. See the System Description documents to locate those pins.

## TROUBLESHOOTING

#### **RT-LAB** is not available in MATLAB<sup>™</sup>

If any of the OPAL-RT toolboxes have not been installed in your instance of MATLAB<sup>™</sup>, you can add them manually. Run the following "m" script in your MATLAB<sup>™</sup> to install them.

- ARTEMIS Blockset: C:\OPAL-RT\ARTEMIS\[ARTEMIS version]\art\_m\setup\_artemis.m
- RT-LAB: C:\OPAL-RT\RT-LAB\[RT-Lab version]\simulink\m\setup\_rtlab.m
- RT-XSG: C:\OPAL-RT\RT-XSG\[RT-XSG version]\Simulink\xsg\_Rxx\m\setxsgpath.m

#### My simulator is not detected by RT-LAB

- 1. Make sure that your antivirus or firewall software has not blocked RT-LAB.
- 2. Create a target node in RT-LAB: in the Project Explorer, right-click on Targets then select New / New Target.
- 3. Enter a name and the specific IP address for the target.
- 4. Now click Ping to ensure that the target is available. If not, please contact your network administrator or follow the instructions on this page: http://www.opal-rt.com/kb-article/how-change-ip-address-or-ip-mask-redhat-target-through-telnet. Otherwise, simply click Finish and your target will appear in the Project Explorer.

#### I need a license for my simulator

If your simulator needs a license, double-click on it in the Project Explorer to open its editor, then go to the License tab and follow the instructions.

For more details on the license system, please visit: http://www.opal-rt.com/KMP/index.php?/article/AA-01022/8/HowTo/How-To-Request-and-Install-a-License-for-RT-LAB-11.x.html

## CONTACT AND SUPPORT

If you have any questions, please refer to our Resource Center or our Download Center web pages or contact the Support team using the "Support Request" web page: <u>www.opal-rt.com/support-home</u>.

Be sure to check out the Troubleshooting page of this Quick Start Guide. It is a good reference for helping you understand the source of any issues you might have. If you don't find an answer, please contact us and we will answer your questions and help you with the getting started process.

#### Resources

Download latest version	http://www.opal-rt.com/download-center/
Technical Support	www.opal-rt.com/support-home
Knowledge Base	www.opal-rt.com/support-knowledge-base

#### CONTACT

#### **OPAL-RT Corporate Headquarters**

1751 Richardson, Suite 2525 Montréal, Québec, Canada H3K 1G6 Tel.: 514-935-2323 Toll free: 1-877-935-2323

Technical Services www.opal-rt.com/support Note:

While every effort has been made to ensure accuracy in this publication, no responsibility can be accepted for errors or omissions. Data may change, as well as legislation, and you are strongly advised to obtain copies of the most recently issued regulations, standards, and guidelines.

This publication is not intended to form the basis of a contract.



**OPAL-RT Technologies Inc.** 

UM17-20137-RVN 1.0 05/2020