

# ReactLab™

## System Requirements and Installation Guide

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### General

The ReactLab™ family of programs have been written in Matlab (the MathWorks, Inc) and compiled using the Matlab compiler. This produces standalone executables that do not require Matlab to run. They do however require the Matlab Compiler Runtime (MCR) to be installed alongside the deployed executable. This is included in the ReactLab™ downloadable installation package, but must be installed in a separate step prior to running ReactLab™ products.

Whilst the core analysis functionality is provided by ReactLab™, all data and results are managed in Excel Workbooks. Excel is launched by ReactLab™ when it is started as an ActiveX server allowing workbook contents to be passed to and from the ReactLab™ application as required.

### System Requirements

Windows XP SP3 or later, Any Intel or AMD processor supporting SSE2 instruction set (in practice a 2.0 GHz dual core or higher is recommended), at least 1GB of disk space and 1GB of RAM (2GB recommended). The current application builds are 32 bit only so will run on both 32 and 64bit Windows installations.

## Additional Software Requirements

Microsoft® Excel 97 (or later). Note restricted worksheet column limit in Excel prior to 2007 limits number of data columns (measurement wavelengths) to 256. This restriction does not apply to Excel 2007.

The ReactLab™ manuals require a PDF reader such as Adobe 9 or Foxit reader 3.0.

## Trial Download procedure

Both ReactLab™ Kinetics and ReactLab™ Equilibria can be downloaded for a free fully functional trial period. The downloads incorporate a transferable 3-day license key allowing the software to be installed and run on any computer during or after which time an extended computer locked trial license key must be requested from Jplus Consulting. The trial period commences when the program is first executed.

The download for each application comprises an application setup file. This should be run with administrator privileges. An installation wizard will guide you through the installation process.

By default the installation will create a Jplus Consulting directory in C:\Program Files or C:\Program files (x86) (on 64bit Windows) directory and place the applications in a subfolder named ReactLab EQUILIBRIA or ReactLab KINETICS along with the corresponding PDF manuals and Excel examples subfolder.

Another subfolder titled MCR is also created in the Jplus Consulting folder in which the MCRInstaller application is placed. This installation utility must be run either automatically (an option prompted by the ReactLab installation wizard) or manually to install the MCR.

Desktop shortcuts to the installed ReactLab™ applications and User Guides are created as well as a shortcut to the MCR installer.

Release notes may be viewed showing the latest features added to the applications at the conclusion of the installation.

## MCR Installation

This must be carried out before attempting to run any ReactLab™ application. If the MCR installer is not automatically started from the ReactLab Installation wizard, launch it from the desktop icon or directly from the installation directory. Another wizard will guide you through the installation process. It will prompt to install the Microsoft Visual C++ redistributable library VCREDIST\_x86 which it also requires. This is included. Following this the MCR itself will be installed in the folder C:\Program Files\MATLAB\MATLAB Compiler Runtime\v713. The v713 refers to the MCR version number. This is currently required by ReactLab™ applications.

Please note, it is not necessary to install the MCR more than once if both ReactLab EQUILIBRIA and ReactLab KINETICS are installed on the same computer. Also if MATLAB is installed on the host computer the MCR does not necessarily need to be installed, *provided the version in use is Matlab 7.10.0 (2010a)*. Older versions of Matlab will not be compatible and MCR v713 will need to be installed. Note: this will not interfere with the pre-existing Matlab installation.

Once the MCR has been installed it will be launched automatically when any installed ReactLab™ application is subsequently run.

### Running ReactLab™ EQUILIBRIA or ReactLab™ KINETICS

Double click the appropriate desktop shortcut to start a ReactLab™ application. A product splash screen will appear prior to the main application launch. For the trial software a dialog appears inviting purchase or license key entry. This will not appear on the fully licensed product. A second dialog will also warn when less than 10 days of the trial period remain. Before the ReactLab™ GUI appears the Matlab MCR is launched in the background and must initialize.

**Warning:** on slower machines the initialization of the MCR can take several seconds or longer.

When the ReactLab™ GUI appears please proceed to operate the software in accordance with the User guides provided in the installation directories. By default pressing the 'load excel file' button will open the directory containing the folder of example workbooks. Please note the Excel template worksheets are in part protected from modification. This can be lifted with the Excel unprotect option. We strongly urge making copies of the originals or archiving the originals elsewhere. Whilst the benefit of the Excel interface is significant the potential open access to the content does make format corruption a risk.

### Obtaining an Extended trial or Permanent License

For detailed information on obtaining an extended trial license key or purchasing a permanent standalone or network license please visit our website and see the [Licensing and Distribution Policy](#).

Extended Trial and Permanent Standalone (single user) licenses allow the associated ReactLab application to be run on a single designated computer. The computer is identified by its hardware 'fingerprint'. Jplus will generate a unique alphanumeric key which encrypts this information with the customer username to allow the program to run either in extended trial mode or permanently on this computer when a purchase has been completed.

The host computer hardware fingerprint can be found by selecting 'Enter Key' in the opening trial warning or expired license dialog that appears when the trial ReactLab™ application is run.

*Please remove any external USB memory devices before running the application to ensure the unmodified PC fingerprint is obtained.*

*Please make sure you obtain the fingerprint on the computer for which you want the trial extension or permanent license and using the specific application you want to license.*

The hardware fingerprint is an 8 digit alphanumeric code unique to a particular computer. Simply cut and paste this into an email and send it to [support@jplusconsulting.com](mailto:support@jplusconsulting.com). Please also supply a full name for the user along with the name of the organisation. A unique license key, whether for an extended trial or permanent license, will then be generated by Jplus Consulting and emailed back together with the license specific user name. Both must be cut and pasted exactly as they appear in the email into the corresponding fields in the 'Enter Key' dialog on the computer which was used to generate the fingerprint.

The user name for permanent licenses will usually be the name of the customer supplied during the purchasing process with an index appended for multiple license purchases eg Dr John Smith L1, Dr John Smith L2 etc.

For single or multiple license purchases alternative local user names can be requested and should accompany the hardware fingerprint data. Please note the user name is not easily changed after the application has been activated.

On entry the application will indicate the entry of a valid key. Depending on the type of license key entered the application will then either run in extended trial or permanent mode on that PC. The user name and license key are accessible from the ReactLab 'About' dialog box.

### **Network Server Installation**

For network licensing configurations it is necessary to install the ReactLab application as a license server on any convenient network PC's or a dedicated server on the network. When running in server mode this instance of ReactLab will allow only the licensed number of copies of the application to run on this and other PC's on the network. It is therefore necessary to install the server version on a computer that is either on permanently or can easily be re-booted if it goes down in order for users elsewhere to run client copies of ReactLab.

Note all client copies of ReactLab are standard installations and do not require local licenses.

The procedure for the server installation is straightforward and requires the execution of two utilities which are included in the standard ReactLab installation.

1. First complete the normal ReactLab installation including the MCR if necessary.

2. It is then necessary to obtain the server/PC hardware fingerprint to send to Jplus so we can issue the purchased network license key. This is then used to register ReactLab as a server application on this computer. This procedure is very similar to that described above for obtaining an extended trial or permanent license. Please first ensure any external USB memory devices are disconnected.
3. To do this, navigate from the Windows 'Start' menu to 'All Programs' and find the 'Jplus Consulting' folder. Inside this click on the appropriate ReactLab 'app' subfolder, where 'app' is KINETICS or EQUILIBRIA. Click on this to show the contents.
4. In addition the main application and user guides are two server installation utility shortcuts:  
    ReactLab 'app' SERVER REGISTER and  
    ReactLab 'app' SERVER

(Please note either of these shortcuts can be used for network key registration for new installations, but license upgrades (eg to support additional network users) must be registered via the SERVER REGISTER shortcut since the SERVER shortcut will not launch the necessary registration dialog when an existing key is present.)

5. Click on ReactLab 'app' SERVER REGISTER. A dialog box appears which provides the 8 digit computer hardware fingerprint. Please email this to Jplus along with the preferred network user name and we will generate a computer locked network license key (incorporating the purchased number of users) and return it by email. Cut and paste this along with the username into the dialog box to complete the server registration process. When OK is pressed a message will confirm the entry of a valid key.

*Please note that while the 'enter key' dialog is very similar to the client 'enter key' dialog that appears when starting the normal trial version of the program the network server key MUST be entered using this SERVER REGISTER utility to work properly.*

6. For this installation to issue license keys to other computers on the network ReactLab must now be run in 'Server' mode on this computer. To do this click on the ReactLab 'app' SERVER shortcut. As explained above if no network key has been previously registered this will also launch a dialog box allowing a network license key to be entered and is an alternative procedure to step 5.
7. A special server mode dialog box will appear temporarily indicating that the ReactLab server is running. The number of network copies and maximum allowed are displayed at the bottom and a series of status lines show the communications between client copies and the server instance. This window can be closed or will close by default automatically but will continue running in the background until the PC is switched off or is re-booted.

8. It is now possible to run up to the maximum number of allowed copies of standard ReactLab client installations on this and other networked PC's. Please note the network connection must be present for remote clients and the server instance remain running.
9. It is clearly desirable for the server instance to start automatically when the server PC is re-booted. For most situations we recommend adding it to the Windows startup folder but this does require that there is someone available to re-boot and log on to this computer.
10. To do this copy the ReactLab 'app' SERVER shortcut from ReactLab 'app' subfolder to the Startup folder which is also found in the Start/All Programs folder list.
11. To open the Startup folder select it with the right mouse button. From the popup menu press open to show the contents.
12. Next return to the ReactLab server utilities in the Jplus folder and right click on the ReactLab 'app' SERVER shortcut and select copy. Then paste this into the Startup folder you opened previously. The shortcut will appear here.
13. Whenever the computer is now re-booted and logged on the corresponding ReactLab SERVER will be automatically started.
14. Note for more advanced or remote server installations it may be more appropriate to register the ReactLab server application as a Windows service. This means it is re-started at re-boot without the need for logging on. This is not currently supported by Jplus Consulting and customers should seek the advice of local IT administrators.

## Upgrading ReactLab

If a new version or release of ReactLab is to be installed on a PC running a previous version of the program it is first necessary to uninstall the old version from the Windows control panel before performing the new installation. Note it is not usually necessary to re-install the MCR since this will not change unless specifically stated with the new release notification. Also note any previously installed license keys will continue to work as before unless it is a major version release with an associated upgrade license cost.

For network licenses it is essential that the new version is installed on the server and all the client computers as the version must be the same for correct operation of the network licensing.

Note: the latest releases will always be available via the 'Download Trial' button on the product page of the company website.

## Moving a Hardware Locked License to a New Computer

If a computer locked license, whether a network server or normal standalone PC license, needs to be transferred to a different or new computer the following procedure should be followed to disable the existing license before a replacement is provided for the new PC. This procedure produces a code which enables verification of the license decommissioning.

To disable a standalone license run the “ReactLab ‘app’ UNREGISTER” utility in the Windows Start/All programs/Jplus Consulting/ReactLab ‘app’ folder. This will prompt you to confirm you wish to unregister the program on this computer and will then generate a confirmation code which you must send to us. We can then verify the process and a replacement license key can be organised for an alternative PC.

For a Server based network license run the ReactLab ‘app’ SERVER UNREGISTER utility in the Windows Start /All programs/Jplus Consulting/ReactLab ‘app’ folder and follow the same procedure as above.

Note: this procedure assumes the obsolete computer is still functioning prior to deciding to switch over to a new PC. If this is not the case because the former computer is non-functional or damaged etc, Jplus Consulting will, at its discretion, and on the basis of reasonable evidence from a group leader or other authority replace the license in the absence of a valid un-registration confirmation code.