

MATLAB Distributed Computing Server 4

Perform MATLAB and Simulink computations on computer clusters and server farms

MATLAB Distributed Computing Server™ lets users solve computationally and data-intensive problems by executing MATLAB® and Simulink® based applications on a computer cluster.

MATLAB Distributed Computing Server is available for all hardware platforms and operating systems supported by MATLAB and Simulink. It includes a basic scheduler and directly supports Platform LSF®, Microsoft® Windows® Compute Cluster Server, Altair PBS Pro®, and TORQUE schedulers. Other schedulers can be integrated using the generic interface API. The product's dynamic licensing feature frees administrators from managing the license profiles of individual users on the cluster; only a single MATLAB Distributed Computing Server license is required for the cluster.

Users program and prototype applications on their desktops using Parallel Computing Toolbox™ and then scale up to a cluster using MATLAB Distributed Computing Server. The server can also be used to scale up executables and shared libraries generated from parallel MATLAB applications with MATLAB Compiler™.

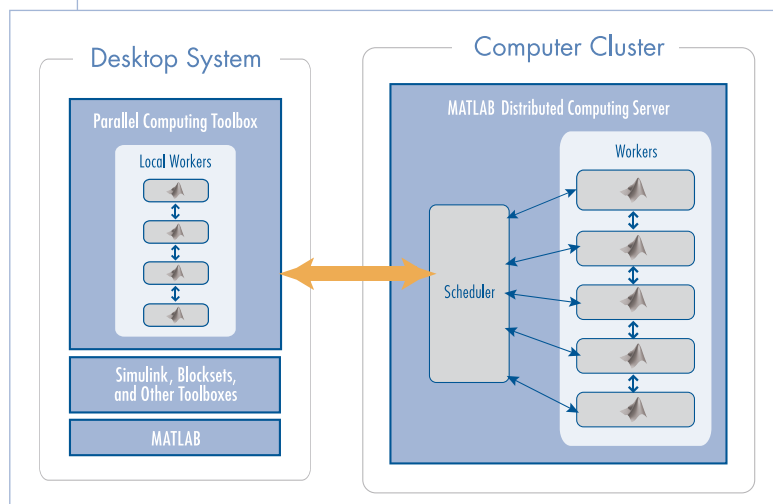
Using MATLAB Distributed Computing Server

MATLAB Distributed Computing Server software is installed on a computer cluster. The server *workers* (MATLAB computational engines that run independently of client sessions) receive and execute computations from various clients. Multiple users can use the server simultaneously.

MATLAB and Simulink users interact with MATLAB Distributed Computing Server through Parallel Computing Toolbox. The users program parallel applications using the toolbox installed on their workstations. To execute their programs, they either initiate an

KEY FEATURES

- Execution of MATLAB or Simulink applications on a computer cluster
- Dynamic licensing for executing applications that use eligible licensed toolboxes or blocksets
- Support for all hardware platforms and operating systems supported by MATLAB and Simulink
- Application scheduling using the MathWorks job manager or third-party schedulers such as Platform LSF, Microsoft Windows Compute Cluster Server, Altair PBS Pro, and TORQUE



Using MATLAB Distributed Computing Server to scale up applications developed with Parallel Computing Toolbox for execution on a computer cluster. Executables and shared libraries generated from parallel MATLAB applications with MATLAB Compiler can also run computations on the server.

interactive session or construct and submit jobs for batch execution. Users also have the option to run four workers on their desktop using just the toolbox for prototyping before scaling up using the server.

With MATLAB Compiler, MATLAB users can build standalone executables or shared libraries from their parallel MATLAB programs for royalty-free distribution as parts of desktop or Web applications. MATLAB Distributed Computing Server workers running on a cluster can perform MATLAB computations received from these executables and shared libraries.

Licensing

A computer cluster requires only a MATLAB Distributed Computing Server license. During application execution, required toolboxes and blocksets are enabled dynamically based on the client's licenses. As a result, multiple MATLAB and Simulink users, each licensed for different toolboxes and blocksets, as well as users of software components generated by MATLAB Compiler from parallel MATLAB programs, can use the server for their computations without the need to manage a separate license profile on the cluster for each user.

Requirements and Installation Hardware and Software Support

MATLAB Distributed Computing Server can be installed on any hardware platforms and operating systems that MATLAB and Simulink support. The server can execute any MATLAB and Simulink code that uses toolboxes and blocksets for which the user is licensed, with the exception of those on the list of ineligible products (see Supported Products section). It can also execute MATLAB computations received from executables and software components that were built from parallel MATLAB programs using MATLAB Compiler.

Multiple MATLAB Distributed Computing Server workers can be launched on a single computer, including on a user's workstation. However, the benefits will accrue only with sufficient availability of RAM and enough processing cores on that computer. The recommendation is to run one worker per processing core.

Supported Schedulers

MATLAB Distributed Computing Server can be integrated with the MathWorks job manager or any third-party scheduler. The MathWorks job manager is intended for personal or small workgroup clusters that run MATLAB jobs exclusively.

Third-party schedulers are supported at two levels. For directly supported schedulers—Platform LSF, Windows Compute Cluster Server, PBS Pro, and TORQUE—the necessary integration scripts are available with the product. Other schedulers are indirectly supported and can be integrated using the product's generic scheduler interface API (some examples are available in the product). For both directly and indirectly supported schedulers, the server workers are launched as any other programs that run on the cluster. To learn more, visit www.mathworks.com/products/distriben/schedulers

Installation and Configuration

Detailed instructions for configuring the installation, including customizations for operating systems and integration with various schedulers, are available at www.mathworks.com/distconfig

Administering Clusters

MATLAB Distributed Computing Server comes fully integrated with the MathWorks job manager. The product includes utilities that let you configure, launch, and monitor services associated with the job manager and help troubleshoot configuration and net-working problems. The product also includes

the Admin Center, a graphical user interface for performing cluster connectivity tests when using the MathWorks job manager. It does not require an active MATLAB session. Third-party schedulers come with their own utilities for cluster administration.

Required Products

MATLAB®

Parallel Computing Toolbox™

(For programming server applications)

Supported Products

MATLAB Distributed Computing Server supports the full MATLAB language and all MathWorks products, except those listed at www.mathworks.com/products/ineligible_programs

Platform and System Requirements

For more information, visit www.mathworks.com/products/distriben/requirements ■

Learn More

www.mathworks.com/products/distriben

Resources

VISIT

www.mathworks.com

TECHNICAL SUPPORT

www.mathworks.com/support

ONLINE USER COMMUNITY

www.mathworks.com/matlabcentral

DEMOS

www.mathworks.com/demos

TRAINING SERVICES

www.mathworks.com/training

THIRD-PARTY PRODUCTS AND SERVICES

www.mathworks.com/connections

WORLDWIDE CONTACTS

www.mathworks.com/contact

E-MAIL

info@mathworks.com