

# Stage 1 of 4

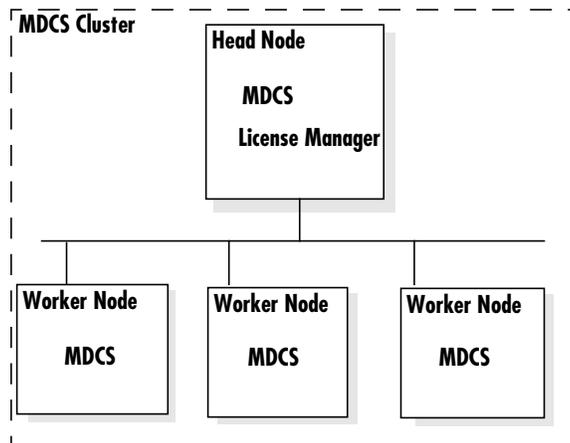
## Stage 1 of 4: Installing MATLAB® Distributed Computing Server™ 4.2 on a UNIX® Operating System Cluster

Follow these instructions to install MATLAB® Distributed Computing Server™ (MDCS) software:

- On nodes running UNIX® operating systems
- Locally on each node in your cluster (nonshared file system)
- Creating a cluster license manager separate from any existing MATLAB license manager

To set up this configuration, you first install MDCS on a node in your cluster. This node is called the *head* node. You can also install the license manager on the head node. After performing this installation, you install MDCS on the other cluster nodes, called *worker* nodes. You do not need to install the license manager on worker nodes.

This figure shows the installations that you must perform on your MDCS cluster nodes. This is only one possible configuration. The cluster license manager and MDCS can be installed on separate nodes, but this type of installation is not discussed in this document.



**Product Installations in MDCS Cluster in Local Access Configuration**

## Step 1: Obtain a License File

In this step, you obtain a License File from the MathWorks License Center.

- 1 Visit the MathWorks Web site at <http://www.mathworks.com/managelicense> to access your account and retrieve your license file and File Installation Key. If this a new license that you have never activated before, you will need to provide the host ID of the license manager node to retrieve your license file; have this host ID available before you log in to your MathWorks account.

(If you have any trouble obtaining your license file, see the solution located at <http://www.mathworks.com/support/solutions/data/1-5VWC8W.html> or by searching for 1-5VWC8W on the MathWorks Support Web site.)

- 2 Save the license file, naming it `license.dat`, in a location accessible to the head node.

## Step 2: Install MDCS on the Head Node

In this step you install MDCS on your cluster's head node. In this configuration you also install the license manager on the head node.

- 1 Create a destination directory in a shared drive location and place the `license.dat` file that you created in Step 1 "Create Your License File" into this directory. Henceforth, this directory will be referred to as *matlabroot*.
- 2 On the head node, insert the DVD into the drive.
- 3 Navigate to the *matlabroot* directory.
- 4 Make sure the installation program can open an XWindow on your display. For example, start `xcalc`.

- 5 Run the following installation script on the DVD:

```
dvdroot/install &
```

where *dvdroot* is the mounted location of the DVD drive.

- 6 Proceed through the installer process performing the specified action in each dialog box:

Installer Dialog Box	Actions
MathWorks Installer	Select <b>Install manually</b> , then click <b>OK</b> .
License Agreement	Review the license agreement and click <b>Yes</b> .
MATLAB Root Folder	Verify the name of the installation folder, then click <b>OK</b> .
File Installation Key	Enter your File Installation Key obtained from your account on The MathWorks Web site, then click <b>OK</b> .
Installation Options	<p>Select all the platforms and all the products you want to install.</p> <p>The <b>Platforms</b> column identifies which product binary files are installed. By default, the check box identifying the platform on which you are running the installer is preselected. If you want to install product binary files for additional platforms, select them in the <b>Platforms</b> column.</p> <p>In the <b>Items to install</b> list, select all products for installation, including the license manager, which appears at the end of the list of products. MathWorks highly recommends installing all products. MDCS cannot run job code that uses products that are not installed.</p>

---

Installer Dialog Box	Actions
License File Location	Verify your License File location, and click <b>OK</b> . This is the <code>license.dat</code> file you placed in the <code>matlabroot</code> folder in Step 1.
Begin Installation	Click <b>OK</b> to begin the installation. The installer displays a dialog box indicating the progress of the installation.
Installation Complete	Click <b>Exit</b> to finish the installation and exit the installer.

---

**Note** MDCS installations are intended to function only in conjunction with Parallel Computing Toolbox. If you try to start a regular interactive MATLAB session directly from the MDCS installation, you might receive license manager error -18 because the installation does not include a license for interactive MATLAB sessions.

---

### Step 3: Start License Manager on Head Node

To run MDCS, the license manager must be running on the head node.

---

**Note** You cannot start the license manager with root privileges.

---

- 1 Navigate to the `matlabroot/etc` directory on the head node.
- 2 Type the following command to start the license manager.  

```
./lmstart
```

## Step 4: Configure License Manager to Start Automatically at Boot Time (Optional)

Although this step is not required, it is helpful in case of a system crash. If you choose to skip this step, you will have to start the license manager manually every time you reboot your cluster machines.

The following sections provide instructions for editing the boot script on these platforms:

- “Debian Linux”
- “SUSE Linux”
- “Red Hat Linux”
- “Sun (Solaris)”

### Debian Linux

- 1 Create the following links, if they do not already exist:

```
ln -s matlabroot/etc/lmboot /etc/lmboot_TMW
ln -s matlabroot/etc/lmdown /etc/lmdown_TMW
```

- 2 Create a copy of the boot script file.

```
cp matlabroot/etc/flexnet.boot.linux /etc/init.d/flexnet
```

- 3 Change permissions of the copy of the boot script file.

```
chmod 555 /etc/init.d/flexnet
```

- 4 Replace the username in the boot script file with an actual username, other than root.

- 5 Look in /etc/inittab for the default run level. Create a link in the rc directory associated with that run level. For example, if the run level is 5, then execute these commands:

```
cd /etc/rc5.d;
ln -s ../init.d/flexnet S90flexnet
```

### SUSE Linux

- 1 Create the following links, if they do not already exist:

```
ln -s matlabroot/etc/lmboot /etc/lmboot_TMW
ln -s matlabroot/etc/lmdown /etc/lmdown_TMW
```

- 2 Create a copy of the boot script file.

```
cp matlabroot/etc/flexnet.boot.linux /etc/init.d/flexnet
```

- 3 Change permissions of the copy of the boot script file.

```
chmod 555 /etc/init.d/flexnet
```

- 4 Replace the username in the boot script file with an actual username, other than root.

- 5 Look in /etc/inittab for the default run level. Create a link in the rc directory associated with that run level. For example, if the run level is 5, execute these commands:

```
cd /etc/init.d/rc5.d;
ln -s ../flexnet S90flexnet
```

### Red Hat Linux

- 1 Create the following links, if they do not already exist:

```
ln -s matlabroot/etc/lmboot /etc/lmboot_TMW
ln -s matlabroot/etc/lmdown /etc/lmdown_TMW
```

- 2 Create a copy of the boot script file.

```
cp matlabroot/etc/flexnet.boot.linux /etc/rc.d/init.d/flexnet
```

- 3 Change permissions of the copy of the boot script file.

```
chmod 555 /etc/rc.d/init.d/flexnet
```

- 4 Replace the username in the boot script file with an actual username, other than root.

- 5 Look in /etc/inittab for the default run level. Create a link in the rc directory associated with that run level. For example, if the run level is 5, then execute these commands:

```
cd /etc/rc.d/rc5.d;
```

```
ln -s ../init.d/flexnet S90flexnet
```

## Sun (Solaris)

- 1 Create the following links, if they do not already exist:

```
ln -s matlabroot/etc/lmboot /etc/lmboot_TMW
ln -s matlabroot/etc/lmdown /etc/lmdown_TMW
```

- 2 Copy the code from `matlabroot/etc/flexnet.boot.sol2` and paste it at the beginning of `/etc/init.d/lmgrd`. Create this file if it does not already exist.

- 3 Change permissions on the `lmgrd` boot script file.

```
chmod 555 /etc/init.d/lmgrd
```

- 4 Edit `/etc/init.d/lmgrd`, replacing the username with an actual username, other than `root`.

- 5 If the file (link) `/etc/rc3.d/S17lmgrd` does not exist, create it, using this code:

```
cd /etc/rc3.d
ln -s ../init.d/lmgrd S17lmgrd
```

## Step 5: Install MDCS on Worker Nodes

After installing MDCS on the head node of your cluster, you must install MDCS on all the worker nodes in our cluster. These installations are nearly identical to the installation on the head node with the following differences:

- You must use the License File that was processed by the installer during the installation on your head node. You can find this file in the `matlabroot/etc` directory on your head node.
- Do not install the license manager on worker nodes.

The following summarizes these installation steps. For more detail, see Step 2.

- 1 Create an installation directory on the worker node. Henceforth, in these instructions, this directory will be referred to as `matlabroot`.
- 2 Copy the License File (`license.dat`) from the head node into this directory. Use the License File that was processed by the installer during the MDCS

installation on the head node (*matlabroot/etc/license.dat*), not the License File you created in step 1.

- 3 Insert the DVD into the drive.
- 4 Navigate to the *matlabroot* directory.
- 5 Make sure the installation program can open an XWindows on your display.
- 6 Run the following installation script:  

```
install &
```
- 7 Proceed through the installer process performing the specified action in each dialog box:

<b>Installer Dialog Box</b>	<b>Actions</b>
MathWorks Installer	Select <b>Install manually</b> , then click <b>OK</b> .
License Agreement	Review the license agreement and click <b>Yes</b> .
MATLAB Root Folder	Verify the name of the installation folder, then click <b>OK</b> .
File Installation Key	Enter your File Installation Key obtained from your account on The MathWorks Web site, then click <b>OK</b> .

Installer Dialog Box	Actions
Installation Options	<p>Select all the platforms and all the products you want to install.</p> <p>The <b>Platforms</b> column identifies which product binary files are installed. By default, the check box identifying the platform on which you are running the installer is preselected. If you want to install product binary files for additional platforms, select them in the <b>Platforms</b> column.</p> <p>In the <b>Items to install</b> list, select all products for installation except the license manager; move the FLEXlm license manager product to the <b>Items not to install</b> list. MathWorks highly recommends installing all other products. MDCS cannot run job code that uses products that are not installed.</p>
License File Location	<p>When prompted for a License File, specify this file from the head node: <i>matlabroot/etc/license.dat</i> (not the license file you created in Step 1). Click <b>OK</b> to continue.</p>
Begin Installation	<p>Click <b>OK</b> to begin the installation. The installer displays a dialog box indicating the progress of the installation.</p>
Installation Complete	<p>Click <b>Exit</b> to finish the installation and exit the installer.</p>

## Step 6: Test Worker Licensing

To verify that MATLAB workers can start correctly on the worker nodes and perform a license checkout, perform the following procedure.

- 1 Log in to a worker node.

---

**Note** You must have write privileges in the current directory.

---

- 2 Run the following command, entering the text on a single line:

```
matlabroot/bin/matlab -logfile output.txt -dmlworker -nodisplay  
-r exit
```

- 3 Look at the file `output.txt`. If the MATLAB worker was able to check out a license, the file should contain something similar to this:

```
< M A T L A B (R) >  
Copyright 1984-2009 The MathWorks, Inc.  
Version 7.9.0.500 (R2009b)  
July 23, 2009
```

To get started, type one of these: `helpwin`, `helpdesk`, or `demo`.  
For product information, visit [www.mathworks.com](http://www.mathworks.com).

If the license checkout failed, the file `output.txt` should contain something similar to this:

```
License Manager Error ...  
Feature:      MATLAB_Distrib_Comp_Engine  
...  
FLEXlm error: ...
```

For more information, see The MathWorks Support page at  
<http://www.mathworks.com/support> and search for  
"license manager error -1"

If you need help with this step, call The MathWorks install support team at 508-647-7000.

© COPYRIGHT 2005–2009 by The MathWorks, Inc. MATLAB and Simulink are registered trademarks of The MathWorks, Inc. See [www.mathworks.com/trademarks](http://www.mathworks.com/trademarks) for a list of additional trademarks. Other product or brand names may be trademarks or registered trademarks of their respective holders.

The MathWorks products are protected by one or more U.S. patents. Please see [www.mathworks.com/patents](http://www.mathworks.com/patents) for more information.