mental ray® Standalone 2011

Installation Guide

For Windows®, Linux®, and Mac OS® X Systems

Autodesk®

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Contents

Installation Guide

About mental ray Standalone

mental ray® Standalone 3D rendering software is a high-performance ray-trace render engine for generating imagery ranging from stylized to photorealistic. Although mental ray 3D rendering technology is integrated in many Autodesk® applications, the stand-alone version is best suited for large volume rendering projects and is available for Autodesk® 3ds Max®, Autodesk® 3ds Max® Design, Autodesk® Maya®, and Autodesk® Softimage®. The 2011 releases of these Autodesk 3D applications all use the same version of mental ray — mental ray Standalone 2011 (also known as mental ray version 3.8.1).

You can use mental ray Standalone from the command line to read and render scene data as files using the .mi scene description language. You can also manually override render options in these .mi files to define extra shaders, create objects, swap textures, or perform other special tasks. In addition, each installation of mental ray Standalone can participate in tile-based distributed renders over a network. mental ray Standalone supports render nodes running Microsoft® Windows®, Linux®, and Mac OS® X operating systems. Visit www.autodesk.com/mentalray for a complete listing of the features and system requirements.

mental ray Standalone 2011 is installed and run with Autodesk network licensing. This means that each installation of mental ray Standalone requests a license from an Autodesk network license server. You must install the license server before installing mental ray Standalone itself. If you already have a license server up and running, then you can simply add your mental ray Standalone licenses to the existing license file.

Topics

- *Combining Licenses On An Existing Autodesk License Server*

- *Installing and Configuring An Autodesk License Server*

- *Installing mental ray Standalone*

- *Starting and Troubleshooting mental ray Standalone*

- *Modifying Service Ports for Network Rendering*

Combining Licenses On An Existing Autodesk License Server

If you already have an Autodesk license server that provides licenses for several Autodesk products, you can continue to use this license server for your mental ray Standalone licenses. You do this by copying the mental ray Standalone license information into the existing license file.

You can combine licenses for different products if the products use the same vendor daemon. For example, you can combine licenses for 3ds Max 2011, 3ds Max Design 2011, Softimage 2011, Maya 2011, and mental ray Standalone 2011 because these products use the same adskflex vendor daemon.

The basics steps are as follows:

1. Copy the INCREMENT section of your mental ray Standalone license file and paste it into your current license file.

   For details about combining licenses, refer to the technical solution http://usa.autodesk.com/getdoc/id=TS13816872 on autodesk.com.

2. Run the LMTOOLS Utility (lmtools).

3. Click the **Start/Stop/Reread** tab.

4. Click "**ReRead License File**" to refresh the Network License Manager with the changes made to the license file.

5. The license server is ready to respond to new license requests.

6. If you haven't done so already, you can install mental ray Standalone and point to this server to obtain licenses. See *Installing mental ray Standalone* on page 8.

Installing and Configuring An Autodesk License Server

These are the basic steps for installing and configuring the Autodesk Network License Manager (LMTools Utility). Once your license server is set up, you can install and run network-licensed versions of mental ray Standalone as render slaves.

Installing the Autodesk Network License Manager

The Network License Manager consists of the following files: lmgrd, adskflex, and lmutil. lmgrd is the license server manager and it is controlled from a command-line.

1. The Autodesk Network License Manager for a standard IPv4 network is available on the mental ray Standalone DVD in the Support\nlm folder.

   If you are running the license server on a pure IPv6 network, you must install the Autodesk Network License Manager for IPv6. This package is available for download according to your operating system at:

   - http://www.autodesk.com/nlm2011-ipv6-windows

   - http://www.autodesk.com/nlm2011-ipv6-mac

   - http://www.autodesk.com/nlm2011-ipv6-linux
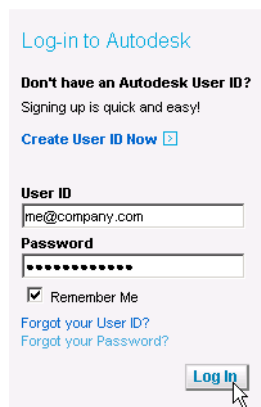
2. Run the Autodesk Network License Manager Setup program on the computer that will be your license server.

3. Accept the End User License Agreement (EULA).

   - Select your Country or Region.

   - Select I Accept and click Next.

4. Select **Autodesk Network License Manager** as the product to configure.

5. To modify the installation location, click **Configure** and specify a new folder. Once you are done, click **Configuration Complete**.

6. If the information in the Current settings box is correct, click **Install**.

7. Click **Finish** once the installation has successfully completed.

Registering and Activating Your Network Licenses

You license mental ray Standalone by requesting a license and installing the license file you obtain from Autodesk on your network license server.

1. Go online at https://registeronce.autodesk.com to register and activate your mental ray Standalone licenses.

2. Log in to your Autodesk account with your User ID and Password.

3. If you do not have an Autodesk user account, you must create one: Click "**Create User ID Now**".

4. Select the Account for which you are registering your product. Click Next.

5. On the Product Registration & Activation page, make the following selections:

   - Select the product's operating system.

   - Enter the product's serial number.

6. Enter your network server information:

    - Choose your network server type.

    - Enter the host name (computer name) of your server. You can use the lmutil command line tool to get the server's name:

    ```
    lmutil lmhostid -hostname
    ```

    - Enter the server ID. You can use the lmutil command line tool to get the server's ID:

    ```
    lmutil lmhostid
    ```

7. Click Next.

8. When the **License(s) Received** window is displayed, your license file is ready to be saved. Click "Save License File".

9. Specify the location where you want to save your license file.

10. Click Save and wait for the download to complete. Click Close.

11. You can Log Off and close your browser.

Configuring the License Server

1. Run the LMTOOLS Utility (lmtools).

2. Click the **Service/License File** tab and select "**Configuration Using Services**".

3. Click the **Config Services** tab:
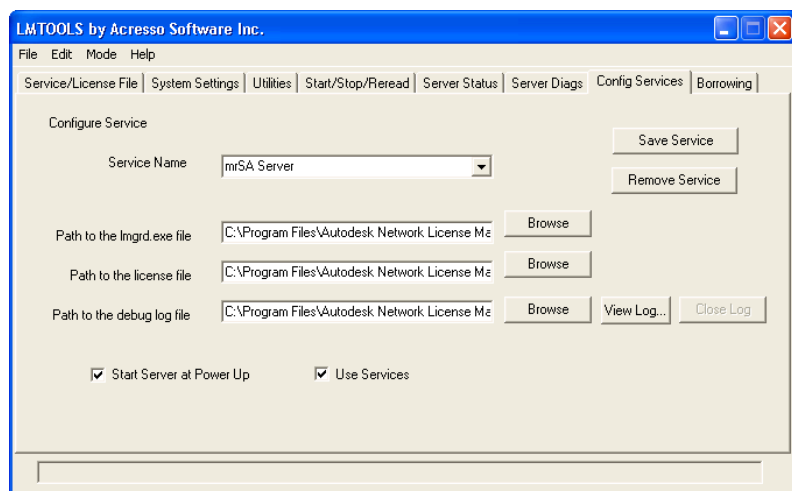
- **Service Name:** Select the service you want to use to manage licenses. When two products use different vendor daemons, you must create a separate license server service for each vendor daemon. Note that mental ray Standalone 2011, 3ds Max 2011, 3ds Max Design 2011, Maya 2011, and Softimage 2011 all use the same adskflex vendor daemon.

- **Path to the lmgrd.exe file:** Enter the path to the Network License Manager daemon (lmgrd.exe).

- **Path to the license file:** Enter the path where you saved your license file.

- **Path to the debug log file:** Enter a path to create a debug log and be sure to include the .log file extension in the name.

- Select **Use Services.**

- Select **Start Server at Power Up.**

- Click **Save Service** to save the new configuration.

4. Click the **Start/Stop/Reread** tab:

   - Click "**Start Server**" to start the license server.

   - Click "**ReRead License File**" to refresh the Network License Manager with any changes made to the license file.

5. The license server is ready to respond to license requests.

6. If you haven't done so already, you can install mental ray Standalone and point to this server to obtain licenses.

Installing mental ray Standalone

These are the basic steps for installing and running a network-licensed version of mental ray Standalone on a Windows, Linux, or Mac OS X workstation. The Setup program installs the mental ray software files and then prompts you to enter the name of the Autodesk license server from where you will obtain your activated licenses.

To successfully complete this task you must have already installed mental ray Standalone licenses on your Autodesk license server. If you have not, follow the procedures described in *Combining Licenses On An Existing Autodesk License Server* on page 3 or *Installing and Configuring An Autodesk License Server* on page 4.

1. Run the mental ray Standalone Setup program.

2. If you have downloaded the package then extract its contents to a chosen location and click Next.

3. Accept the End User License Agreement (EULA).

   - Select your Country or Region.

   - Select I Accept and click Next.

4. Enter your product information: the serial number and product key. For mental ray Standalone 2011 the product key is **718C1**.

5. **Network** is the only license type that you can use to run mental ray Standalone. It is enabled by default.

6. In the **Server name** text box, enter the host name (computer name) of your license server.

   You can use the lmutil command line tool to get the server's host name:

   ```
   lmutil lmhostid -hostname
   ```

If you are running a license server and the mental ray Standalone software on the same dual stack IPV4 and IPV6 machine (which is the default for Vista and Windows 7), then in order for the client to correctly access the license server **do not** use the hostname or the "localhost" alias in the Server name text box. Instead, the server name must be set to 127.0.0.1 (the "loopback" IP address).

7. Select the **Complete** installation option. Click **Next**.

   By default, a Complete installation of mental ray Standalone is installed to the following locations:

   Windows:

   C:\Program Files\Autodesk\mrstand3.8.1-adsk2011

   Linux:

   /usr/autodesk/mrstand3.8.1-adsk2011

   Mac OS X:

   /Application/Autodesk/mrstand3.8.1-adsk2011

8. If you want to install to a different location, choose **Custom** and click the **Change** button to specify a new installation path. Click **Next**.

9. Click **Install**.

10. When the installation is complete, click **Finish**.

Checklist of Default Install Settings

These are the default settings and destination folders for all components of a mental ray Standalone 2011 installation. You can use this information to configure or troubleshoot your mental ray rendering setup.

Component	Default Location	Description
mental ray Standalone software	**Windows:** C:\Program Files\Autodesk\mrstand3.8.1-adsk2011\bin **Linux:** /usr/autodesk/mrstand3.8.1-adsk2011/bin **Mac OS X:** /Application/Autodesk/mrstand3.8.1-adsk2011/bin	The default installation location of the mental ray Standalone binaries and utilities. To modify the install directory, select the Custom install option and enter the location of your choice.
adskmr381 38010/tcp	The name of the mental ray service and its TCP port number specified in the system **services** file.	Each installation of mental ray Standalone is configured to run the mental ray service which listens, by default, on TCP port number **38010**. To edit the TCP port number, see *Modifying Service Ports for Network Rendering* on page 14.
Autodesk Network License Manager software	**Windows:** C:\Program Files\Autodesk\Autodesk Network License Manager **Linux:** /usr/autodesk/Autodesk Network License Manager **Mac OS X:** /Application/Autodesk/Autodesk Network License Manager	The Autodesk Network License Manager handles the allocation of mental ray Standalone licenses when rendering is initiated.

Component	Default Location	Description
VENDOR adskflex port=2080	The license server port specified in the **license file**.	The port used by mental ray to communicate with the Autodesk network license daemon which is configured, by default, on port number **2080**.
mental ray shaders	The **shaders** folder under the mental ray Standalone installation path.	mental ray Standalone automatically installs the factory shaders for all the supported Autodesk 3D applications.

MRSA_LICENSE Environment Variable

Your Autodesk network license file contains information that identifies your license server, namely the hostname and host ID. This information is specified by the first line in your license file:

```
SERVER    MyServerName    0000000a0b0c
```

In the case where you want specific mental ray Standalone render nodes to obtain licenses from a license server other than the one specified in the original license file, you can set the MRSA_LICENSE environment variable to point to a folder containing a different license file with the appropriate network license information. This alternate license file can be located any where that is accessible on the network.

Starting and Troubleshooting mental ray Standalone

mental ray can be started from a command line using the ray command in a command prompt or Terminal window. For example, to render the "flick" MI file:

```
ray flick.mi
```

When started from a command line, mental ray accepts a large number of options. When an option is given on the command line, it overrides the corresponding command or statement in the scene file, which in turn overrides the defaults. The defaults for certain options apply only if the corresponding command or statement is not present in the scene file.

Getting Information About mental ray Standalone Options

• **mental ray Documentation:** You can find detailed descriptions for all of the mental ray Standalone options in the mental ray documentation available in the **doc** subfolder of the directory where mental ray Standalone is installed.

• **Command Line Help:** You can also get brief quick-reference style descriptions of all of the mental ray Standalone options by typing **ray -h** at the command prompt or in a Terminal window.

Troubleshooting mental ray Standalone Rendering

This section contains solutions to common problems when rendering with mental ray Standalone.

mental ray Verbose

In general, to find the specific cause of a problem, open a shell or command prompt and enter:

```
ray -verbose on
```

This produces a detailed account of mental ray's actions.

Slaves Not Rendering

If a slave is not participating in the distributed rendering, check to see if:

- It uses a different version of mental ray from the other computers in the network. All computers in a distributed rendering network must use the same version of mental ray.

- Its shaders are located in the same path as the master.

Render Not Starting

- Make sure that you have enough licenses available. Check the license server log for license request information.

- If you are running the license server and the mental ray Standalone software on the same dual stack IPV4 and IPV6 machine, then in order for the client to correctly access the license server, the server name must be set to 127.0.0.1 (the "loopback" IP address) in the license file.

Corrupted Images

If your rendered images have corrupted tiles, a slave may be losing its connection to the license server. Ensure that the license server is not running any memory-intensive tasks.

Machine Won't Load For a Network Render

If a machine won't load for a network render with mental ray, try the following to see if the machine is responding:

For example, if sparky won't load, type:

```
telnet sparky adskmr381
```

- If you see some messages ("Escape character is..."), this is good.

- If you see "Unable to connect...", there is a problem with the slaves' /etc/inetd.conf or /etc/services.

Modifying Service Ports for Network Rendering

By default, the Setup program automatically chooses port **38010** for mental ray to use when communicating with other computers during rendering sessions.

If you need to use a TCP service port other than 38010 for mental ray network rendering, then you can modify the TCP service to listen on a different port of your choice. This modification must be done on each machine running mental ray Standalone.

It is strongly recommended that all computers in a distributed rendering network run the same version of the mental ray software and that they also use the same TCP port number. It is particularly important to use the same TCP port number if you are doing distributed rendering across different platforms.

To edit the service ports on Windows you must have administrator privileges on your machine. On Linux, you must log in as root. On Mac OSX, you can make these modifications as sudo root.

To edit the service port on Windows and Linux

1. In a text editor, open the services file:

   - Windows:

   ```
   C:\Windows\system32\drivers\etc\services
   ```

   - Linux:

   ```
   /etc/services
   ```

2. Edit the line:

   ```
   adskmr381    38010/tcp
   ```

   to

   ```
   adskmr381    <newportnumber>/tcp
   ```

3. Save the file.

To edit the service port on Mac OSX

1. Open a Terminal window.

2. To determine the port you're currently using, type:

   ```
   dscl . -read /Services/adskmr381
   ```

3. To edit the mental ray service port, type:

   ```
   sudo /bin/dscl . -change /Services/adskmr381 port
   <currentportnumber> <newportnumber>
   ```