



Citrix Licensing 11.5-11.6

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Citrix Licensing 11.5-11.6

Licensing Highlights

The information in this section pertains to Citrix Licensing versions 11.5 and 11.6.

Readme for Citrix Licensing 11.6 for Windows	Known issues and work-arounds for licensing, including product-specific and release-specific issues
Readme for Citrix Licensing 11.5 for Windows	Known issues and work-arounds for licensing, including product-specific and release-specific issues
Getting Started with Citrix Licensing	General licensing terms, pre-requisites, and installation procedures for installing the license server and its associated License Management Console
Upgrading	Procedures for upgrading your product licenses, as well as upgrading the licensing components
Using the License Management Console	An overview of the Licensing Management Console with instructions for managing your licenses and generating reports
Using License Administration Commands	A listing and detailed instructions for using license administration commands
Understanding and Editing License Files	Detailed information about the contents of license files
Setting up the License Server on a Microsoft Cluster	Procedure and guidelines for setting up licensing in a clustered environment
Subscription Advantage and Licensing	What you need to know about your Subscription Advantage membership and its association to licensing
Frequently Asked Questions for Licensing	Frequently asked questions about licensing

Readme for Citrix Licensing 11.6 for Windows

Readme Version: 1.4

This readme addresses the following versions of the license server: 11.6.1 build 9020

Important: When upgrading or installing new Citrix products, always upgrade the license server first. Citrix does not provide hotfixes for license server components and does not support older license servers with newer products. The latest versions of the license server often contain resolutions to issues appearing in earlier versions.

Citrix recommends that you install the newest version of the license server. The new license server is backward compatible and will work with older products and license files; however, new products require the newest license server to check out licenses correctly. You can install or upgrade the latest version from the product media or from the Citrix Web site ([downloads page](#)).

Unsure which version of the license server you have? See [Finding the License Server Version Number](#).

For information about system requirements, see [Prerequisites](#).

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Getting Support

Citrix provides technical support primarily through Citrix Solutions Advisor. Contact your supplier for first-line support or use Citrix Online Technical Support to find the nearest Citrix Solutions Advisor.

Citrix offers online technical support services on the [Citrix Support Web site](#). The Support page includes links to downloads, the Citrix Knowledge Center, Citrix Consulting Services, and other useful support pages.

Installation Issues - General Issues

- When installing Citrix Licensing on a Windows operating system do not use multibyte characters in path names. [#73148]
- When typing an installation path for the license server, use ASCII characters only; otherwise, the License Management Console may not launch. [#173746, 180337]
- Double-clicking the CTX_licensing.msi file in the German, French, Spanish, and Japanese Server media folders runs the licensing setup in English. To access the licensing setup program in one of these languages, access it from Autorun or the command-line specific to the language. [#113417]
- To install Citrix Licensing using Active Directory, you must apply the ActiveDirectoryLicensingInstallSupport.mst transform file. [#76996]
- When configuring the product-side setting for the license server name, do not use localhost. Use the host name, IP address, or FQDN instead. [165986]
- After the licensing components are installed and the Citrix Licensing service restarts, two copies of the license server (lmgrd.exe) are launched. This occurs with license server versions 11.1, 11.3, 11.5, and 11.6. This is "as designed". Two lmgrd.exe processes exist during normal execution. [#182151]
- Before you perform an unattended installation of Citrix Licensing you must install the JRE version supported by the licensing components (1.6.0_5). To install the JRE from the command line, type:

```
jre-1_6_0_5-windows-i586-p.exe /lang=1033 /v"/qn  
REBOOT=ReallySuppress REBOOTPROMPT=Suppress  
ADDLOCAL=ALLWEBSTARTICON=0 AUTOUPDATECHECK=0 IEXPLORER=1 MOZILLA=1"
```

[83379,150474]

- On Windows Server 2003 operating systems, when you attempt to install the Citrix License Server, the installation fails and error 1935 appears in the System Windows Event Log. This issue is caused during the installation of Microsoft MSXML that is installed as part of the license server installation. To resolve this issue, install MSXML 4.0 SP2 from the Microsoft Download Center and then rerun the license server installation. [#171653]
- On all operating systems, when you install the license server components, versions 11.5 or 11.6.1, the c:\bin\CfgEngine directory and associated files are created. If you do not want these files to be installed in your root directory, install the license server components from the command line by specifying the "INSTALLDIR" option. For example,

```
msiexec /i CTX_Licensing.msi INSTALLDIR="C:\Program Files\Citrix\"
```

[#207530]

- When you install the license server components, version 11.6.1, on the same server as other Citrix products, the License Management Console is configured to use port 8080, by default, which may conflict with the other Citrix products (for example, they may use the Citrix XML Service which may use 8080 as well). To resolve this issue:

1. Navigate to C:\Program Files\Citrix\Licensing\LMC\tomcat\conf\server.xml
2. Open the file in Wordpad.
3. Replace the port number (8080) in the following line with 8082:

```
<Connector port="8080" protocol="HTTP/1.1"
connectionTimeout="20000" redirectPort="8443"/>
```

4. Save the file.
5. Reboot the server.

[# 207742]

Uninstalling Licensing

To remove Citrix Licensing from a computer, Citrix recommends that you uninstall it using **Add/Remove Programs**.

Files remaining after you uninstall licensing:

- C:\Program Files\Citrix\Licensing\LS\ reportlog.rl
- C:\Program Files\Citrix\Licensing\MyFiles\CITRIX.opt
- C:\Program Files\Citrix\Licensing\MyFiles\citrix_startup.lic
- C:\Program Files\Citrix\Licensing\MyFiles*.lic
- C:\Program Files\Citrix\Licensing\MyFiles\tomcat-users.xml

Note: On a 64-bit Windows platform, the default directory is C:\Program Files (x86)\Citrix\Licensing\

Other Known Issues

For all supported operating systems, in an Apache Web Server environment, when you run a repair on the Citrix License Server versions 11.5 or later to repair deleted files, the repair process fails. This results from the repair process attempting to repair IIS instead of Apache. To resolve this issue, uninstall, then reinstall the licensing components. [#206727]

For all supported operating systems, in an Apache Web Server environment, after you upgrade the license server, the Apache Web Service fails to restart and the License Management Console does not launch. To resolve these issues, uninstall, then re-install the

licensing components. Alternatively, if you do not use the License Management Console and wish to restart the Apache Web Server only, restart the service manually. [#206728, #207168]

On the Windows Server 2003 platform, an application error appears when you attempt to shut-down the license server. Ignore this message, or stop the Citrix Licensing service before you shut-down the license server. [#175449]

Microsoft Clustering for Citrix License Server

- Installing the Citrix License Server Version 11.6 on a Windows 2000 Server cluster fails. There is no workaround at this time. [#186461]
- If any of the licensing services (including Citrix Licensing, the Citrix License Management Console, or the Citrix Licensing WMI services) fail to start, the cluster detects that licensing is offline and attempts to restart the service three times (by default). If these attempts are unsuccessful, failover to the next node is initiated and the cluster attempts to start the services on the second node. If the attempts fail on the second server, the process may enter into an infinite loop. In this case, the computers running Citrix products fall into the grace period. During the grace period, client connections are not affected.

License Management Console

- After using the License Management Console to copy the license to the license server, the license does not appear in the License Management Console. Although the license does not appear, the license is copied successfully but is not recognized by the license server. Restart the Citrix License Management Console and the Citrix Licensing services to reread the file. [#175275]
- If you are running an English version of a Windows operating system with a Japanese, Simplified Chinese, Traditional Chinese, or Korean supplemental language pack installed, you cannot log on to the License Management Console using a user name with multibyte characters. [#82831]
- When generating reports, do not close the License Management Console without clicking the **Cancel** button. If you do not click **Cancel**, reports continue running. To stop reports from generating after closing the console, restart the Citrix License Management Console service. [#86689]
- Generating product reports with the Percent Installed Licenses data type causes the reporting engine to lock. The License Management Console continues operating after the reporting engine locks. However, you must restart the Citrix License Management Console service before you can generate any further reports. [#107210]
- For the Japanese language only, If you generate and view a report (from the License Management Console welcome page by clicking **Generate Historical Reports > Product Reports > Generate Report > View CSV Output File** the characters in the .rif output file are garbled. To solve this issue, after generating the file, do not click **View CSV Output File**. Instead, use the path to the .rif file (you can find the path in the HTML source code of the Generate Report page) to download the file manually (or directly). [#198791]
- After upgrading the license server to version 11.6, the error message:

Error: png output requires JDK1.4 or later

appears after you generate a report using the License Management Console. Ignore this message; the report generates correctly. [#200746]

License Files

- More than one Citrix startup license can be checked out by one Citrix product from a particular (Citrix) server. This may be caused by a problem with the Citrix.startup.lic license file. See article [CTX113090](#) in the Citrix Knowledge Center for a new Citrix.startup.lic file and instructions for installing the new file.
- The GROUPCASEINSENSITIVE command (Options file) is not supported.
- License Files with multiple lines referencing HOSTNAME= are ignored by the license server.

Licenses in these files cannot be checked out. This issue is caused when you download licenses associated to different license server hostnames into the same license file. Any of the following error messages might appear in the Event Log Viewer:

- Event ID: 724 Description: (2196) Invalid license key.
- Event ID: 764 (2196) Wrong hostid on SERVER line in license file.

In addition, the License Management Console displays the following error message on the License Files page: ...Error List Returned...Unknown Host.

To resolve this issue, re-download separate license files for each Citrix product tied to different license server names. See article [CTX110909](#) in the Citrix Knowledge Center for additional information.

- When replacing evaluation license files on the license server with new license files, the Citrix product may still display the following license expiration message when users log on:

Warning: The following Citrix Product is using an Evaluation license. This license will expire in...

To resolve this issue:

1. Remove the old evaluation license files from the license server. (See [Deleting License Files](#)).
2. In the License Management Console, click **Configure License Server**, followed by **Update license data**. Alternatively, at the license server, restart the Citrix Licensing service.
3. At the Citrix product server, point to a fictional license server and then point the product back to the actual license server. (See your product's administrator's guide for information about changing these settings.)
4. If the problem persists, restart the product server.

- Multiple Citrix startup licenses are checked out by one Citrix product from a particular (Citrix) server. This may be caused by a problem with the Citrix.startup.lic license file. See article [CTX113090](#) in the Citrix Knowledge Center for a new Citrix.startup.lic file and instructions for installing the new file.

Event Log Viewer Messages

- The following message appears in the Event Log Viewer: (1224) Client/server comm version mismatch. The client and server programs are running potentially incompatible versions of FLEXnet comm software.

This is an informational message indicating that a Citrix product with a version number of 4.0 (or earlier) is communicating with a newer version of the Citrix License Server. Ignore this message.

- After upgrading the license server, the following messages may appear in the Event Log Viewer:
 - Detection of product '{8AAA9207-A30A-4158-9640-8886AA9BD86F}', feature 'CTX_LS', component '{F826569F-BFB0-4D4F-9B01-341070F968D5}' failed. The resource 'C:\bin\CfgEngine\Configuration.xml' does not exist.
 - Detection of product '{B91F5D65-61AD-48C6-B595-71F58844529C}', feature 'CTX_LS' failed during request for component '{FB1869D6-3FE1-446B-AF01-3858F849CDA5}'
 - Detection of product '{B91F5D65-61AD-48C6-B595-71F58844529C}', feature 'Complete', component '{303994BA-6487-47AE-AF1D-7AF6088EEBDB}' failed. The resource " does not exist.
 - A provider, MgmtEventProv, has been registered in the Windows Management Instrumentation namespace Root\Citrix\Management to use the LocalSystem account. This account is privileged and the provider may cause a security violation if it does not correctly impersonate user requests.
 - Failed to connect to server. Error: 0x80070005.

Note: The product and component numbers above are examples only. The actual numbers may be different. Additionally, the error messages may appear more than once in the Event Log Viewer.

Ignore these messages. The upgrade is successful. [#207927, #183919]

Product-Specific Issues

Citrix Branch Repeater with Windows Server

- If you install the same license twice, the second time may trigger a change in the Send Bandwidth Limit, which will be set to the maximum licensed speed. To solve this issue, do not install the same license twice. If you must do so, verify that the Send Bandwidth

Limit is set correctly. [#53894]

- When using the ISA Edge Firewall Mode in Citrix Branch Repeater with Windows Server, the Citrix Licensing service (lmgrd) unexpectedly stops, two error messages are displayed, and the Branch Repeater unit may run in un-accelerated mode. The first error message is a Data Execution Prevention - Microsoft message indicating that Windows has closed the program (lmgrd). The second error message (follows the first) is a Microsoft error feedback window. No intervention is required because the Citrix Licensing service (lmgrd) automatically restarts in less than a minute; however, if you wish to prevent this issue from reoccurring, you can change the Citrix Licensing properties startup type from automatic to manual. To change this setting:
 1. Log on to Citrix Branch Repeater with Windows Server Administrator privileges.
 2. Click **Start > Program Files > Administrative Tools > Component Services**.
 3. Click **Services (local)**, then double-click **Citrix Licensing**. The Citrix Licensing properties are displayed.
 4. In the **Citrix Licensing** dialog box, change the **Startup Type** from **Automatic** to **Manual** and click **OK**.

#50418

Web Interface

If you install the License Management Console on a 64-bit operating system and then install Web Interface (created for 32-bit mode), opening the License Management Console causes error messages to appear, such as Service unavailable or This page cannot be found and Web Interface fails.

To prevent this problem, install Web Interface first, and then install the License Management Console.

If the problem occurs, try these workarounds:

- Install the Citrix License Server and License Management Console on a computer separate from the one running Web Interface.
- If you must install the Citrix License Server, License Management Console, and Web Interface on the same computer, uninstall and reinstall the license server (after installing Web Interface).
- You might also need to disable "RPC over HTTP proxy." To do this, from **Start > Control Panel > Add or Remove Programs**, select **Add/Remove Windows Components**, and disable **Networking Service > RPC over HTTP proxy**, and restart. [#150659]. For additional information, see article [CTX111854](#) in the Citrix Knowledge Center.

Citrix XenApp Management Pack

Details about the Citrix License Server are always blank on the Monitoring tab of the System Center Operations Manager for Citrix Managed Servers. There is no workaround for this issue. [#192159]

Release-Specific Issues

Access Essentials 2.0

Before installing the license server version 11.6.1 or the HRP04 rollup pack on systems running Access Essentials 2.0, you must install Hotfixes AEE200W2K3001 and AEE200W2K3002. Failure to do so might render Access Essentials inoperable.

XenDesktop 4.0

If you have licenses in German, Spanish, or French, you must download the latest Startup License from the License Server download page of the Citrix Web site ([downloads page](#)). Although a startup license file is installed by default with the license server, the License Management Console does not display German, Spanish, or French product names correctly until you install the version of the startup license available on the downloads page. To overwrite the existing `citrix_startup.lic` file with the newly downloaded version:

1. Copy the startup license file from the directory where it was saved to the license server MyFiles directory.

`C:\Program Files\Citrix\Licensing\MyFiles` on a 32-bit server
`C:\Program Files(x86)\Citrix\Licensing\MyFiles` on a 64-bit server

2. At a command prompt, navigate to:

`C:\Program Files\Citrix\Licensing\LS` on a 32-bit server
`C:\Program Files(x86)\Citrix\Licensing\LS` on a 64-bit server

and type the following command: `lmreread -c @localhost`. This command ensures that the license server recognizes the new file.

XenDesktop 3.0

The version of the license server provided on the Citrix XenDesktop 3.0 installation media is compatible with XenDesktop but is not the most recent version. If you are using other Citrix products in addition to XenDesktop, Citrix recommends that you install the most recent version of the license server from the Citrix Web site, [downloads page](#).

Citrix MetaFrame Access Suite 3.0

Upgrading licensing from Citrix MetaFrame Access Suite 3.0 to a newer version of licensing

During the upgrade process of the license server, the licensing components are detected as installed but there is a prompt to remove them. You cannot upgrade licensing in a Citrix product that has licensing 1.0.0 installed as it is incompatible with the licensing that is used in Citrix products today. Uninstall the licensing components and reinstall the latest version. Click [here](#) to find out which version of licensing is installed. [#217704]

Readme for Citrix Licensing 11.5 for Windows

Readme Version: 1.10

Important: When upgrading or installing new Citrix products, always upgrade the license server. Citrix does not provide hotfixes for license server components and does not support older license servers with newer products. The latest versions of the license server often contain resolutions to issues appearing in earlier versions.

Citrix recommends that you install the newest license server. The new license server is backward compatible and will work with older products and license files; however, new products require the newest license server to check out licenses correctly. You can install or upgrade the latest version from the product media or from the Citrix Web site ([downloads page](#)).

Unsure which version of the license server you have? See [Finding the License Server Version Number](#).

For information about system requirements, see [Prerequisites](#).

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Citrix offers online technical support services on the [Citrix Support Web site](#). The Support page includes links to downloads, the Citrix Knowledge Center, Citrix Consulting Services, and other useful support pages.

Installation Issues - General Issues

- When installing Citrix Licensing on a Windows operating system do not use multibyte characters in path names. [#73148]
- When typing an installation path for the license server, use ASCII characters only; otherwise, the License Management Console may not launch. [#173746, 180337]
- Double-clicking the CTX_licensing.msi file in the German, French, Spanish, and Japanese Server media folders runs the licensing setup in English. To access the licensing setup program in one of these languages, access it from Autorun or the command-line specific to the language. [#113417]
- Installing the English version of the Citrix License Server Version 11.5 on a Spanish 64-bit operating system fails. Contact customer support. [#187188]
- To install Citrix Licensing using Active Directory, you must apply the ActiveDirectoryLicensingInstallSupport.mst transform file. [#76996]
- During the installation of the Citrix License Server Version 11.5, ensure that you enter the port numbers correctly within the displayed range. If you append any additional characters to the port number or enter anything other than numerical characters, the install will continue, the license files will be updated with the incorrect port number, and the license server will not be able to communicate. [#184329]
- When configuring the product-side setting for the license server name, do not use localhost. Use the host name, IP address, or FQDN instead. [165986]
- After the licensing components are installed and the Citrix Licensing service restarts, two copies of the license server (lmgrd.exe) are launched. This occurs with license server versions 11.1, 11.3, and 11.5. This is "as designed". Two lmgrd.exe processes exist during normal execution. [#182151]
- Before you perform an unattended installation of Citrix Licensing you must install the JRE version supported by the licensing components (1.6.0_5). To install the JRE from the command line, type:

```
jre-1_6_0_5-windows-i586-p.exe /lang=1033 /v"/qn  
REBOOT=ReallySuppress REBOOTPROMPT=Suppress  
ADDLOCAL=ALLWEBSTARTICON=0 AUTOUPDATECHECK=0 IEXPLORER=1 MOZILLA=1"
```
- [83379,150474]
- On Windows Server 2003 operating systems, when you attempt to install the Citrix License Server, the installation fails and error 1935 appears in the System Windows Event Log. This issue is caused during the installation of Microsoft MSXML that is installed as part of the license server installation. To resolve this issue, install MSXML 4.0 SP2 from the Microsoft Download Center and then rerun the license server installation. [#171653]
- On all operating systems, when you install the license server components, versions 11.5 or 11.6.1, the c:\bin\CfgEngine directory and associated files are created. If you do not

want these files to be installed in your root directory, install the license server components from the command line by specifying the "INSTALLDIR" option. For example,

```
msiexec /i CTX_Licensing.msi INSTALLDIR="C:\Program Files\Citrix\  
[#207530]
```

Uninstalling Licensing

To remove Citrix Licensing from a computer, Citrix recommends that you uninstall it using **Add/Remove Programs**.

Files remaining after you uninstall licensing:

- C:\Program Files\Citrix\Licensing\LS\ reportlog.rl
- C:\Program Files\Citrix\Licensing\MyFiles\CITRIX.opt
- C:\Program Files\Citrix\Licensing\MyFiles\citrix_startup.lic
- C:\Program Files\Citrix\Licensing\MyFiles\ *.lic

Note: On a 64-bit Windows platform, the default directory is C:\Program Files (x86)\Citrix\Licensing\

Other Known Issues

For all supported operating systems, in an Apache Web Server environment, when you run a repair on the Citrix License Server versions 11.5 or later to repair deleted files, the repair process fails. This results from the repair process attempting to repair IIS instead of Apache. To resolve this issue, uninstall, then reinstall the licensing components. [#206727]

For all supported operating systems, in an Apache Web Server environment, after you upgrade the license server, the Apache Web Service fails to restart and the License Management Console does not launch. To resolve these issues, uninstall, then re-install the licensing components. Alternatively, if you do not use the License Management Console and wish to restart the Apache Web Server only, restart the service manually. [#206728, #207168]

On the Windows Server 2003 platform, an application error appears when you attempt to shut-down the license server. Ignore this message, or stop the Citrix Licensing service before you shut-down the license server. [#175449]

Microsoft Clustering for Citrix License Server

- Installing the Citrix License Server Version 11.5 on a Windows 2000 Server cluster fails. There is no workaround at this time. [#186461]

- If any of the licensing services (including Citrix Licensing, the Citrix License Management Console, or the Citrix Licensing WMI services) fail to start, the cluster detects that licensing is offline and attempts to restart the service three times (by default). If these attempts are unsuccessful, failover to the next node is initiated and the cluster attempts to start the services on the second node. If the attempts fail on the second server, the process may enter into an infinite loop. In this case, the computers running Citrix products fall into the grace period. During the grace period, client connections are not affected.

License Management Console

- After using the License Management Console to copy the license to the license server, the license does not appear in the License Management Console. Although the license does not appear, the license is copied successfully but is not recognized by the license server. Restart the Citrix License Management Console and the Citrix Licensing services to reread the file. [#175275]
- If you are running an English version of a Windows operating system with a Japanese, Simplified Chinese, Traditional Chinese, or Korean supplemental language pack installed, you cannot log on to the License Management Console using a user name with multibyte characters. [#82831]
- When generating reports, do not close the License Management Console without clicking the **Cancel** button. If you do not click **Cancel**, reports continue running. To stop reports from generating after closing the console, restart the Citrix License Management Console service. [#86689]
- Generating product reports with the Percent Installed Licenses data type causes the reporting engine to lock. The License Management Console continues operating after the reporting engine locks. However, you must restart the Citrix License Management Console service before you can generate any further reports. [#107210]
- For the Japanese language only, If you generate and view a report (from the License Management Console welcome page by clicking **Generate Historical Reports > Product Reports > Generate Report > View CSV Output File** the characters in the .rif output file are garbled. To solve this issue, after generating the file, do not click **View CSV Output File**. Instead, use the path to the .rif file (you can find the path in the HTML source code of the Generate Report page) to download the file manually (or directly). [#198791]
- After upgrading the license server to version 11.5, the error message:

Error: png output requires JDK1.4 or later

appears after you generate a report using the License Management Console. Ignore this message; the report generates correctly. [#200746]

License Files

- More than one Citrix startup license can be checked out by one Citrix product from a particular (Citrix) server. This may be caused by a problem with the Citrix.startup.lic license file. See article [CTX113090](#) in the Citrix Knowledge Center for a new Citrix.startup.lic file and instructions for installing the new file.

- The GROUPCASEINSENSITIVE command (Options file) is not supported.
- License Files with multiple lines referencing HOSTNAME= are ignored by the license server.

Licenses in these files cannot be checked out. This issue is caused when you download licenses associated to different license server hostnames into the same license file. Any of the following error messages might appear in the Event Log Viewer:

- Event ID: 724 Description: (2196) Invalid license key.
- Event ID: 764 (2196) Wrong hostid on SERVER line in license file.

In addition, the License Management Console displays the following error message on the License Files page: ...Error List Returned...Unknown Host.

To resolve this issue, re-download separate license files for each Citrix product tied to different license server names. See article [CTX110909](#) in the Citrix Knowledge Center for additional information.

- When replacing evaluation license files on the license server with new license files, the Citrix product may still display the following license expiration message when users log on:

Warning: The following Citrix Product is using an Evaluation license. This license will expire in...

To resolve this issue:

1. Remove the old evaluation license files from the license server. (See [Deleting License Files](#)).
 2. In the License Management Console, click **Configure License Server**, followed by **Update license data**. Alternatively, at the license server, restart the Citrix Licensing service.
 3. At the Citrix product server, point to a fictional license server and then point the product back to the actual license server. (See your product's administrator's guide for information about changing these settings.)
 4. If the problem persists, restart the product server.
- Multiple Citrix startup licenses are checked out by one Citrix product from a particular (Citrix) server. This may be caused by a problem with the Citrix.startup.lic license file. See article [CTX113090](#) in the Citrix Knowledge Center for a new Citrix.startup.lic file and instructions for installing the new file.

Event Log Viewer Messages

- The following message appears in the Event Log Viewer: (1224) Client/server comm version mismatch. The client and server programs are running potentially incompatible versions of FLEXnet comm software.

This is an informational message indicating that a Citrix product with a version number of 4.0 (or earlier) is communicating with a newer version of the Citrix License Server. Ignore this message.

- After upgrading the license server, the following messages may appear in the Event Log Viewer:
 - Detection of product '{8AAA9207-A30A-4158-9640-8886AA9BD86F}', feature 'CTX_LS', component '{F826569F-BFB0-4D4F-9B01-341070F968D5}' failed. The resource 'C:\bin\CfgEngine\Configuration.xml' does not exist.
 - Detection of product '{B91F5D65-61AD-48C6-B595-71F58844529C}', feature 'CTX_LS' failed during request for component '{FB1869D6-3FE1-446B-AF01-3858F849CDA5}'
 - Detection of product '{B91F5D65-61AD-48C6-B595-71F58844529C}', feature 'Complete', component '{303994BA-6487-47AE-AF1D-7AF6088EEBDB}' failed. The resource " does not exist.
 - A provider, MgmtEventProv, has been registered in the Windows Management Instrumentation namespace Root\Citrix\Management to use the LocalSystem account. This account is privileged and the provider may cause a security violation if it does not correctly impersonate user requests.
 - Failed to connect to server. Error: 0x80070005.

Note: The product and component numbers above are examples only. The actual numbers may be different. Additionally, the error messages may appear more than once in the Event Log Viewer.

Ignore these messages. The upgrade is successful. [#207927, #183919]

Other Messages

- The following message appears in the lmgrd_debug log:
Non-activation-capable daemon activation invoked with non-client-request event type.
Ignore this message.
- The following message appears in the lmgrd_debug log:
(CITRIX) UNSUPPORTED
This message is for debugging purposes. Ignore this message.

Product-Specific Issues

Citrix Branch Repeater with Windows Server

- If you install the same license twice, the second time may trigger a change in the Send Bandwidth Limit, which will be set to the maximum licensed speed. To solve this issue, do not install the same license twice. If you must do so, verify that the Send Bandwidth Limit is set correctly. [#53894]
- When using the ISA Edge Firewall Mode in Citrix Branch Repeater with Windows Server, the Citrix Licensing service (lmgrd) unexpectedly stops, two error messages are displayed, and the Branch Repeater unit may run in un-accelerated mode. The first error message is a Data Execution Prevention - Microsoft message indicating that Windows has closed the program (lmgrd). The second error message (follows the first) is a Microsoft error feedback window. No intervention is required because the Citrix Licensing service (lmgrd) automatically restarts in less than a minute; however, if you wish to prevent this issue from reoccurring, you can change the Citrix Licensing properties startup type from automatic to manual. To change this setting:
 1. Log on to Citrix Branch Repeater with Windows Server Administrator privileges.
 2. Click **Start > Program Files > Administrative Tools > Component Services**.
 3. Click **Services (local)**, then double-click **Citrix Licensing**. The Citrix Licensing properties are displayed.
 4. In the **Citrix Licensing** dialog box, change the **Startup Type** from **Automatic** to **Manual** and click **OK**.

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Web Interface for Presentation Server

If you install the License Management Console on a 64-bit operating system and then install Web Interface (created for 32-bit mode), opening the License Management Console causes error messages to appear, such as Service unavailable or This page cannot be found and Web Interface fails.

To prevent this problem, install Web Interface first, and then install the License Management Console.

If the problem occurs, try these workarounds:

- Install the Citrix License Server and License Management Console on a computer separate from the one running Web Interface.
- If you must install the Citrix License Server, License Management Console, and Web Interface on the same computer, uninstall and reinstall the license server (after installing Web Interface).
- You might also need to disable "RPC over HTTP proxy." To do this, from **Start > Control Panel > Add or Remove Programs**, select **Add/Remove Windows Components**, and disable **Networking Service > RPC over HTTP proxy**, and restart. [#150659]. For additional information, see article [CTX111854](#) in the Citrix Knowledge Center.

Citrix XenApp Management Pack

Details about the Citrix License Server are always blank on the Monitoring tab of the System Center Operations Manager for Citrix Managed Servers. There is no workaround for this issue. [#192159]

Release-Specific Issues

XenDesktop 3.0

The version of the license server provided on the Citrix XenDesktop 3.0 installation media is compatible with XenDesktop but is not the most recent version. If you are using other Citrix products in addition to XenDesktop, Citrix recommends that you install the most recent version of the license server from the Citrix Web site, [downloads page](#).

XenApp for Windows Server 2008 Early Release Issues

For the Early Release, installing Citrix Licensing on Windows Server 2008 does not open inbound ports through Windows Firewall; therefore, XenApp servers cannot find the license server. To solve this problem, create two inbound port rules on the server on which you have installed Citrix Licensing. See [To create specific inbound rules in Windows Firewall for this procedure](#).

<http://www.citrix.com>

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Getting Started with Citrix Licensing

Welcome to Citrix Licensing. This section provides details about how to license your Citrix product quickly and easily. It introduces you to the two major components that are part of the Citrix Licensing process: The Citrix License Server for Windows and the License Management Console. It provides you with a simplified overview of the licensing process and details the types of licenses available for Citrix products. It takes you through the step-by-step process of installing the licensing components and obtaining the license file needed to use your Citrix products.

Citrix eDocs contains information about Citrix Licensing, versions 11.5 and above. Earlier versions are documented in the Citrix Knowledge Center.

Citrix recommends that you upgrade the license server to the latest version. Citrix does not provide hotfixes for license server components and does not support older license servers with newer products. The latest versions of the license server often contain resolutions to issues appearing in earlier versions. When you upgrade or install new Citrix products, upgrade the licensing components as well. New license servers are backward compatible and will work with older products and license files; however, new products often require the newest license server to check out licenses correctly. You can find the latest version from the Citrix [Downloads site](#). If you are unsure if your license server version is current, you can verify it by comparing your version with the number on the Downloads site. To find out which license server version you have, see [Finding the License Server Version Number](#)

About the Licensing Process

The following section provides a top-level overview of the licensing process. For a more detailed explanation of all of the daemons, files, and services that are part of the process but are not included here, see the [Licensing: Architecture, An Overview](#) white paper in the Citrix Knowledge Center.

When a user connects to a Citrix product, the product requests a license from the license server. When the license server grants the request, the product receives a license. This is known as *checking out* a license. When the user logs off from the product server, the product returns the license to the license server. This action is known as *checking in* a license.

Each time a Citrix product starts up, it opens a connection to the license server by checking out a *startup* license.

Startup License

The startup license does not affect your license count. It is used to allow Citrix products to communicate with the license server using a continuous open connection. Every five minutes the license server and the products send a *heartbeat* message to each other to verify that they are mutually communicating.

Note: Some Citrix products can operate in a *disconnected* mode (not connected to the server). These products allow a user to check out a license and operate the product for a preconfigured period of time that is set by the administrator. In this case, heartbeat messages are not exchanged. One example of disconnected mode is when a user checks out a Password Manager license for a laptop, and then uses the laptop when it is not connected to the server.

Grace Periods

If for any reason, a Citrix product cannot contact the license server to request a license, the product goes into a *grace period*. This grace period is set by Citrix and differs depending upon the product. The Windows Event Log displays messages that inform you if the product has entered the grace period, the number of hours remaining in the grace period, as well as a message that states that the grace period has ended and the product will stop accepting connections. Once communication is re-established between the product and the license server, a new message is displayed stating that the product has left the grace period.

Note: For products that operate in disconnected mode, the grace period takes effect after the preconfigured time specified for the license check-out expires.

The grace period allows the user to continue using the product for a specific period of time until the license server can exchange heartbeat messages with the product or, in the case of a user operating in disconnected mode, the user reconnects to the server.

Note: This grace period only takes place if the product has successfully communicated with the license server at least once.

Types of Licenses

Your product uses one of the following types of licenses (some products allow you to choose more than one type). It is important that you are aware of which types of licenses your company has purchased and how they are consumed. This ensures that you do not run out of licenses. The license types are:

User or device licenses

With XenDesktop 4, user or device licenses allow you to assign the license to a user or a device. When assigned to a user, the license allows access from an unlimited number of devices. When assigned to a device, the license allows access from the device by an unlimited number of users.

A licensed device requires a unique device ID and is authorized for use by any individuals to access instances of XenDesktop. Use this type of license for shared devices, such as classroom, hospital, or clinical workstations.

A licensed user requires a unique user ID, such as an Active Directory entry. You can reference these users and do not need to manage a separate or specific list of authorized users. When assigned to a user, the license allows the user to connect to their desktops and applications with multiple devices, such as desktop computer, laptop, netbook, smartphone, or thin client. A licensed user can connect to multiple instances of XenDesktop concurrently.

Concurrent user licenses

This type of license is not tied to a specific user. When a user launches a product, the product requests the license and it is checked out to the specific computer or device that the user is using. When the user logs off or disconnects from the session, the license is checked back in and is available for another user. Using this logic, keep the following scenarios in mind:

- Multiple sessions at different computers use multiple licenses. Each time a user launches a Citrix session from a different computer or device, a license is checked out until the user closes the session at that computer or device (at which point the license is checked back in). For example, if a user launches a session from one computer and then launches another from another computer (before closing the session on the first), two licenses are checked out.
- Because, license servers do not communicate with each other, if you are running multiple license servers you may consume more than one license (for example, with load balancing). If you are using load balancing, Citrix recommends that the product servers point to the same license server.
- Different editions consume different licenses. If a user connects to an application published on a computer running Advanced edition and then uses the same client to connect to an application published on a computer running Enterprise edition, two licenses are consumed.
- RDP connections consume a license (RDP connections to a console do not consume a license).

Concurrent system licenses

This type of license is similar to a concurrent user license; however, it is tied to a system, not a specific computer or device that the user is using.

When a user boots a computer or device and a system is launched (for example, an operating system or a virtual machine instance), a license is requested and checked out to the computer or device. The license remains in a checked out state until the system is no longer running (the computer or device is powered off or the virtual machine instance is stopped). Unlike a concurrent user license, the concurrent system license is not affected by a user logging on or off from a session; it is tied to the system's power state (on or off).

Licenses are purchased on a per system basis; one license per running system is required.

Using this logic, keep the following scenarios in mind:

- Multiple systems running on a computer or device require one license for each system. For example, if a user is running two virtual machine instances on one computer, two concurrent system licenses are used.
- If a user is running one or more systems and logs off from a session, licenses are not released. The concurrent system license (or licenses) remains in a checked out state until the user powers off the computer or device (thereby closing the system connection to the computer or device) or stops the virtual machine instance.

Named user licenses

When a product requests a license, it is checked out to the user until a preconfigured period of time expires. This type of check-out is not tied to a computer or device; once the license is checked out, the user can run multiple sessions on different computers without checking out more licenses.

To License Your Product (Overview)

Licensing your product includes completing the following steps.

1. Install the license server and the License Management Console.
2. Connect to <http://www.citrix.com> to allocate your licenses and download the license file.
3. Copy the license file to your license server.
4. Install your Citrix product. If Citrix products are already installed prior to installing licenses, you must restart the Citrix products for the new licenses to be recognized.
5. Configure product-side licensing communication settings that were not set during product installation, if applicable. This includes setting the correct product-edition in the product. Details about these settings are covered in the product documentation. Ensure that the product-side edition setting correctly matches the licenses you have purchased. For example, if you purchased Platinum edition licenses, ensure that the edition setting in the product indicates Platinum—not Enterprise or Advanced.

Ensuring You Have the Latest License Server

When upgrading or installing new Citrix products, always upgrade the license server. The new license server is backward compatible and will work with older products and license files; however, new products require the newest license server to check out licenses correctly. You can install or upgrade the latest version from the product media.

Note: Citrix does not provide hotfixes for license server components and does not support older license servers with newer products. The latest versions of the license server often contain resolutions to issues appearing in earlier versions.

Upgrading the Citrix License Server from a Beta and Release Product Preview is not supported. Uninstall all license server components installed from early releases before installing Citrix Licensing.

Finding the License Server Version Number

If you are unsure if your license server is current, you can verify it by comparing your version number with the version number on the Citrix Downloads site.

Find the license server version in the following registry key:

`HKEY_LOCAL_MACHINE\SOFTWARE\Citrix\LicenseServer\Install.`

Note: Use Registry Editor to view the license server information only. Editing the Registry can cause serious problems that may require you to reinstall your operating system.

1. Log on to the computer where the licensing components are installed.
2. Click **Start** > **Run** and type `regedit`. The Registry Editor launches.
3. Navigate to `HKEY_LOCAL_MACHINE\SOFTWARE\Citrix\LicenseServer\Install`. The version number appears in the format: 11.5.0.0 build 9014.

Starting with the license server, version 11.5, the license server version number appears in the format: 11.5.0.0 build 9014. When comparing version numbers, compare the numbers preceding the word `build` and the numbers following it.

Prerequisites

This topic provides general information for determining your licensing system requirements.

Hardware Requirements

The license server and License Management Console are compatible with the same hardware required to support the compatible operating systems. No additional hardware is required.

Note: The license server does not support multi-homing (two network cards plugged into distinct networks).

Software Requirements for License Server

You can install the license server on servers running the following Microsoft operating systems. Citrix recommends that you install the latest Microsoft service pack for the operating system.

- Windows 2000 Server Family (all editions)
- Windows Server 2003 Family (all editions)
- Windows Server 2008 Family (all editions except Windows Server 2008 R2)

Note: If you are installing the license server on a Windows 2000 Server platform, ensure that you have MSI 3.x installed. You can find MSI 3.x in the **Support** folder on the media or download.

Requirements for License Management Console

The optional License Management Console must be installed on the same server as the license server and requires the following additional software:

Browser Support (HTML 3.2 to HTML 4.0)	Internet Explorer 5.0 (minimum requirement) Note: As of Citrix Licensing v11.5, Netscape is no longer supported
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Web Servers	<p>Microsoft Internet Information Services (IIS) 5.0, 6.0, or 7.0</p> <p>Note: For Windows Server 2008, you must have the following roles installed: ASP.NET, Windows Authentication security role, and IIS 6 Management Compatibility role</p> <p>Apache HTTP Server 2.0.49 (Apache HTTP Server is available from http://archive.apache.org/dist/httpd/)</p>
Servlet Engine	<p>License Server Version 11.5: Tomcat 4.1.24 (included in the License Management Console installation)</p> <p>License Server Version 11.6: Tomcat 6.0.18 (included in the License Management Console installation)</p>
Java Environment	Sun Java Runtime Environment (JRE) 6 Update 16

Configuring a Web Service

The License Management Console runs as a Web service. Configure a Web service—either Apache or IIS—before you install the License Management Console. If you choose IIS as your Web service, the License Management Console is installed on the default Web site. If you do not want the License Management Console as your default IIS site, you can do one of the following:

- Use Apache as the Web service for the License Management Console
- Even though other applications on that server continue to use IIS as their Web service, install Apache as the Web service for the License Management Console

Windows Server 2008 requires the license server Version 11.5 and the following roles if you are using IIS. If any of the roles are missing, the installation will stop and rollback; therefore, ensure that they are installed before you begin installing the License Management Console.

- ASP.NET
- Windows Authentication security role
- IIS 6 Management Compatibility role

Important: If you choose to install the License Management Console, Setup stops and restarts the Web service (IIS or Apache), which affects any dependent services. Run the installation program when you can stop and restart the Web service.

To add IIS roles for the License Management Console (Windows Server 2008 Only)

1. Log onto the computer on which you are installing the licensing components using an administrator's account.
2. From the Start menu, click **Start > All Programs > Administrative Tools > Server Manager**.
3. In the left pane of the Server Manager, expand **Roles**, right-click **Web Server (IIS)**, then click **Add Role Services**. The Select Roles Services window appears.
4. Ensure that the following check boxes are selected:

Prerequisites

- **Application Development > ASP.NET**
 - **Security > Windows Authentication**
 - **IIS 6 Management Compatibility**
5. Click **Next > Install > Close**.
 6. In the Server Manager window, choose **File > Exit** to close the Server Manager window. The roles are added.

Installing Licensing Components

Citrix Licensing can be installed either using the setup program provided on the Citrix installation media, or as an unattended setup, using the Msiexec command. This section details how to use the setup program. For information about running an unattended setup, see [Running an Unattended Setup](#).

Licensing components can either be installed on a separate, dedicated server or on a server they share with another application (for example, a backup data collector, farm metric server or terminal server license server). Alternatively, you can use a Web or application server; however, the three locations mentioned above are less resource intensive. If you are running fewer than 50 servers, you can install the license server on the same server as your product.

To install both the license server and the License Management Console components

1. Determine which computer you will use to install the license server and License Management Console. Install both components on the same computer (and on the same drive).
2. Log onto the computer on which you are installing the licensing components using an administrator's account. This account will be used each time you log on to the License Management Console until you set up additional permissions.
3. Insert the installation media and from the Autorun screen, select the product edition you have purchased.
4. Select **Common Components > Citrix Licensing**, then navigate through the installation wizard, clicking **Next** to move to each subsequent page.

Note: Depending upon the Citrix product you are installing, your Autorun may offer choices that are different from the following steps. In any case, navigate to **Citrix Licensing** and follow the Autorun instructions.

5. On the page that lists the destination folder where the licensing components will be installed, click **Next** to accept the default (after changing the drive letter to correspond with yours, if necessary). By default, licensing components are installed in C:\Program Files\Citrix\Licensing on a 32-bit computer and C:\Program Files (x86)\Citrix\Licensing on a 64-bit computer.
 6. Continue through the wizard and accept the default destination folder for the license files by clicking **Next** (after changing the drive letter if necessary). You must store the license files on the same drive as your license server software. By default, the license files are stored in C:\Program Files\Citrix\Licensing\MyFiles on a 32-bit computer and C:\Program Files (x86)\Citrix\Licensing\MyFiles on a 64-bit computer.
 7. Accept the default license server and vendor daemon port numbers unless the numbers are already in use or you are using a specific port number for your firewall (vendor daemon port number). In this case, enter alternate numbers. The default numbers are:
 - License server port number is 27000
 - Vendor daemon port number is 7279
- Note:** You can change the numbers after the installation, if needed. See [Modifying Port Numbers for Firewalls](#).
8. Select the Web server that will be used to display the License Management Console and click **Next**. For more information about the Web servers available for the License Management Console, see [Prerequisites](#).
 9. Click **OK**, then **Next** to agree to stop and restart the Web server.
 10. Click **Next** to start the installation. The installation continues until complete.

Note: For the XenApp Release Preview only, installing Citrix Licensing on Windows Server 2008 does not open inbound ports through Windows Firewall; therefore, XenApp servers cannot find the license server. To solve this problem, create two

inbound port rules on the server on which you have installed Citrix Licensing. See [Creating Inbound Rules](#).

You are now ready to go to the Citrix Web site to obtain the license files needed to run your Citrix products. This procedure is detailed in [Obtaining Your License Files](#).

To install the license server only

1. Determine which computer you will use to install the license server.
2. Using a domain account that is also a member of the local administrators group, log onto the computer on which you are installing the license server.
3. Insert the Citrix installation media and navigate to the Licensing folder.
4. Double-click **CTX_Licensing.msi**.
5. Follow the wizard accepting the default options, except for the following items (if necessary).
 - Ensure that the option to install the License Management Console is not selected (it should have a red X preceding it).
 - For the destination file directory pages, you can change the drive where the files are installed; however, do not change the destination paths.

Note: For the XenApp Release Preview only, installing Citrix Licensing on Windows Server 2008 does not open inbound ports through Windows Firewall; therefore, XenApp servers cannot find the license server. To solve this problem, create two inbound port rules on the server on which you have installed Citrix Licensing. See [Creating Inbound Rules](#).

You are now ready to go to the Citrix Web site to obtain the license files needed to run your Citrix products. This procedure is detailed in [Obtaining Your License Files](#).

Obtaining Your License Files

After you install the licensing components, you are ready to obtain your license files from Citrix. This process involves going to www.citrix.com to access your available licenses and generating a license file, and downloading it to the computer on which the license server resides (or to any other computer). Finally, if you downloaded the file to another computer, you copy the license file to the server on which you installed the licensing components (into the `C:\Program Files\Citrix\Licensing\MyFiles` directory) and reread the file so that it can be recognized by the license server. This procedure is described in detail in this section.

If you installed the License Management Console, you can access My Citrix from within the License Management Console. This component takes you to My Citrix and after you allocate your licenses and generate a file, you can use the interface to copy the file to the **MyFiles** directory where the license server can read the file.

Otherwise, if you did not install the License Management Console, you must open a browser and navigate to citrix.com, allocate your licenses and generate the file, manually download the file, copy it to the **MyFiles** directory on the license server, and run a command so that the license server recognizes the file.

Note: Both procedures are detailed in this section.

Before going to the Citrix Web site, you need the following at hand:

- **The license code.** Find this code: on the Citrix installation media pack, in an email you receive from Citrix, or from the Subscription Advantage Management-Renewal-Information system (SAMRI).
- **Your user ID and password for MyCitrix.** You can register for this password on My Citrix.

Note: If you cannot locate either of these items, contact [Citrix Customer Service](#).

- **The name of the server on which you installed the licensing components.** The entry field for this name is case-sensitive so ensure that you copy the name exactly as it appears on the computer.

You can find the hostname by running the `hostname` command at a command prompt. The hostname is displayed in case-sensitive format.

- **How many licenses you want to include in the license file.** You do not have to download all of the licenses you are entitled to at once. For example, if your company purchases 100 licenses (also called *entitlements*), you may choose to allocate and download only 50 at this time. At a later date, you can allocate the rest in another license file. You can have more than one license file.

To use the License Management Console to access My Citrix and download the license file

1. At the computer where the License Management Console is installed, log on using the credentials that were configured in the License Management Console. This includes the administrator credentials used to install the component or any other credentials configured within the License Management Console after its installation.
2. Launch the License Management Console (**Start > All Programs > Citrix > Management Consoles > License Management Console**).
3. From the Welcome page, click **Configure License Server > Step 1: Download license file from MyCitrix.com**.
4. On the My Citrix page, enter your user credentials and password.
5. Select **Manage Licenses** from **Choose a Toolbox**.
6. From the Manage Licenses main menu, select **Allocate**.
7. Follow the process to allocate and generate your file.
8. Select the licenses you want to download, click **Download** and save the file to a directory (remember the location where you downloaded the file; you will need this location).
9. Return to the License Management Console. If you are at the License Files page, click **Step 2: Copy license file to this license server** before performing the next step.
10. On the Upload license file page, if the directory information does not already appear in the **License File** field, browse to the location where you saved the license file, select the file, then click **Upload**.
11. On the License Files page, click **Update license data**. The file appears in the table on the page.

Note: Some products have basic product-specific settings that you configure in the user interface associated with that product. Whenever this is the case, instructions for entering and modifying these settings are included within the product administrator's guide.

To manually obtain your license file and copy it to the license server

1. From a Web browser, go to <http://www.citrix.com>.
2. Click **Log In** and enter your user ID and password.
3. From the drop-down list, select **License Management**.
4. From the Manage Licenses main menu, select **Allocate**.
5. Follow the process to allocate and generate your file.
6. Select the licenses you want to download, click **Download** and save the file to a directory (remember the location where you downloaded the file; you will need this location).
7. At the license server, copy the license file from the directory where it was saved to the MyFiles directory (C:\Program Files\Citrix\Licensing\MyFiles on a 32-bit computer or C:\Program Files (x86)\Citrix\Licensing\MyFiles on a 64-bit computer) .
8. At a command prompt, navigate to C:\Program Files\Citrix\Licensing\LS on a 32-bit computer or C:\Program Files (x86)\Citrix\Licensing\LS on a 64-bit computer and type the following command: `lmreread -c @localhost`. This command ensures that the license server recognizes the new file.

Note: Some products have basic product-specific settings that you configure in the user interface associated with that product. Whenever this is the case, instructions for entering and modifying these settings are included within the product administrator's guide.

Using Unattended or Command-Line Installation

Running an Unattended Setup

You can configure Citrix Licensing setup to run without assistance using the following methods:

- Applying transforms to the installation database. A Windows Installer transform modifies the installation package file at installation time and applies the values you set. For most products, the licensing installation transform (ActiveDirectoryLicensingInstallSupport.mst) is located on the installation media in the Support\Install directory. For Citrix XenApp, it is in the Support\Install directory on the installation media. To learn about creating transforms and creating administrative installations on network share points, see the Citrix XenApp documentation.
- Creating an answer file to provide answers to the questions asked during Setup. A sample answer file is located on the Citrix installation media at Support\Install.

Using the Command Line to Install Licensing

When using the Msiexec command to install licensing, set properties by adding Property="value" on the command line anywhere except between an option and its argument.

The following sample command line installs licensing and creates a log file to capture information about this operation. Add the properties you want to set after the switches.

Note: Type the following command in one long line. In the following example, the lines wrap due to space limitations; however, when typing the command, there are no spaces at the end of the line; continue typing the text in the next line as if it didn't wrap.

```
msiexec /I ctx_licensing.msi ctx_licensing_installldir="E:\Program Files\Citrix\Licensing\LS" ctx_lic_file_path="E:\Program Files\Citrix\Licensing\MyFiles\" ctx_web_server="Apache" Full_HTTPD_Conf_File_Path="C:\Program Files\Apache Group\Apache2\conf\httpd.conf" ctx_cluster_resource_dll_path="C:\Program Files\Citrix\Licensing\LS\" register_ctx_ls_clustering="No" ctx_license_server_port="27000" ctx_vendor_daemon_port="7279" /!* v "c:\install.log" /q
```

where:

ctx_licensing_installldir is the location where the license server executable is stored.

ctx_lic_file_path is the location where licenses are stored.

ctx_web_server is either IIS or Apache.

full_HTTPD_conf_file_path is the full path location to the ApacheHTTPD.conf file. Used for Apache installations only.

ctx_cluster_resource_DLL_Path is the location where the cluster resource DLL executable is stored. Used for clustering only.

register_ctx_LS_clustering is either “no” for cluster node 1 or “yes” for cluster node 2. Used for clustering only.

ctx_license_server_port=“27000” is the port number for the license server (default is 27000).

ctx_vendor_daemon_port=“7279” is the port number for the vendor daemon (default is 7279).

/l*v is the location of the setup log.

/q specifies a silent (quiet) installation.

Upgrading

Each time you upgrade your Citrix product, you should also upgrade the Citrix License Server. Each time a new license server is released, it may contain better security, fixes to known issues, and so on. In some cases, new versions of the Citrix product will not work with older versions of the license server.

Note: New versions of the license server are compatible with older versions of the product.

If you are a current Citrix Subscription Advantage member, you are eligible to version upgrade to the latest release of Citrix products and upgrade your existing licenses to the license system used by these products.

Version Upgrade means the movement from any previous version of a product to the newest version of the product (for example, moving from Presentation Server 4.5 to XenApp 5.0). Version upgrading is a benefit of an active Subscription Advantage membership.

Edition Upgrade means the purchase of a higher edition level of a product (for example, you currently have Presentation Server Advanced Edition and you purchase an upgrade to Presentation Server Enterprise Edition).

Upgrading the License Server

Important: When upgrading or installing new Citrix products, always upgrade the license server. Citrix does not provide hotfixes for license server components and does not support older license servers with newer products. The latest versions of the license server often contain resolutions to issues appearing in earlier versions.

Citrix recommends that you install the newest license server. The new license server is backward compatible and will work with older products and license files; however, new products require the newest license server to check out licenses correctly. You can install or upgrade the latest version from the Citrix Web site ([Downloads page](#)).

If you have Citrix products that were released prior to Citrix MetaFrame Presentation Server 3.0 (some of these products include MetaFrame XP or MetaFrame 1.8, MetaFrame Secure Access Manager 2.x, and MetaFrame Password Manager 2.x.); you must upgrade your licensing to the licensing schema that was introduced with Citrix Presentation Server 3.0 before you can use any of the products that were introduced as of the 3.0 release.

Upgrade your licensing components before upgrading your product, if necessary.

Unsure which version of the license server you have? See [Finding the License Server Version Number](#).

For information about system requirements, see [Prerequisites](#).

To upgrade the license server:

1. From your license server, open the media for your product. You can also find the license components download on the Citrix Web site ([Downloads page](#)).
2. If you do not see Setup, use Windows Explorer to open Autorun.exe.
3. In Setup, click **Product installations and updates > Install Citrix Licensing**.
4. On the License Agreement page, choose **I accept the license agreement**, then click **Next**.
5. On the following pages accept the defaults by clicking **Next**.
6. After the license server is updated, click **Finish**. The installation checklist appears.
7. Click **Finish** and then **Exit** to exit the installation program.

Upgrading Licenses for Your Edition

If you decide to run a higher edition of a Citrix product (for example, XenApp Advanced to Enterprise), you must purchase an upgrade license and add it to the license server. You will also need to change the product edition setting in the product's user interface. Citrix recommends that you plan to change the product edition setting during a time when there are not many connections to the affected servers or that you plan to redirect connections to another computer. When you change the product edition setting, you must restart the product server for changes to take effect. See the product's administrator's information for changing the edition setting. If you add the upgrade license to the license server before you set the edition to the new edition, the Citrix product stops accepting new connections.

Note: Licenses from old product editions appear on the Complete License Inventory page on the License Management Console even though they are no longer valid. If you do not proactively remove obsolete and/or unnecessary license allocations, you may see persistent alerts regarding the Subscription Advantage expiration dates of these licenses. You cannot turn these alerts off. The only impact of leaving obsolete license allocations on license servers is that you will continue to receive these alerts. If you want to remove the licenses, see [Deleting License Files](#).

To upgrade edition licenses:

1. From a Web browser, go to <http://www.citrix.com>.
2. Click **Log In** and enter your user ID and password.
3. From the drop-down list, select **License Management**.
4. From the Manage Licenses main menu, select **Upgrade**.
5. Follow the site's options and instructions for upgrading your product edition licenses.
6. Either download or order new media. An email message provides you with instructions to return to My Citrix to allocate or receive additional feature licenses.
7. Log on to www.citrix.com to allocate your licenses, generate a license file, download the license file to your license server, and reread the file.

Upgrading to Feature Pack 1 for Platinum 4.5

If you are current with your Subscription Advantage membership and you already have Presentation Server 4.5 Platinum Edition, you are entitled to the latest version of the product at no charge as a benefit of the membership. If you upgraded to Presentation Server 4.5 before July 20, 2007 and now want to upgrade to 4.5 with Feature Pack 1, you should consolidate your licenses. See the [Presentation Server Technical Upgrade Guide](#) in the Citrix Knowledge Center for instructions about which features are included and how to install this release.

Depending upon when you purchased your licenses for Presentation Server 4.5, Platinum Edition, you will have a different set of licenses that operate in a slightly different manner. The differentiating factor is whether you purchased your licenses before or after July 20, 2007.

Purchased Before July 20, 2007

If you purchased Presentation Server 4.5, Platinum edition before July 20, 2007, you received five distinct licenses—one for each of the following products.

- Citrix Presentation Server
- Citrix Application Streaming for Desktops
- Citrix EdgeSight for Presentation Server
- Citrix Password Manager
- Citrix Access Gateway

The SmartAccess Universal license is a concurrent user license that can be used on any of the Access Gateway appliance editions. In other words, the licenses for the SmartAccess feature are edition independent.

Note: The Access Gateway appliance is sold separately.

These licenses appear on the Complete License Inventory page in the License Management Console.

If you purchased this Platinum edition license prior to July 20, 2007 you should upgrade to the consolidated Platinum license that is now available through the self-service fulfillment portal available on www.citrix.com. Future hotfix, client, and feature updates will require this consolidated Platinum license to function properly.

To consolidate your licenses:

1. From a Web browser, go to <http://www.citrix.com>.

2. Click **Log In** and enter your user ID and password.
3. From the Manage Licenses main menu, select **Upgrade**.
4. From the **Select a Product to Fulfill** dropdown list, select **Presentation Server**.
5. From the **Select a Product to Receive** dropdown list, select **Presentation Server** , then click **Submit**.
6. Select the **Fulfill Presentation Server 4.5 to Presentation Server 4.5 with Feature Pack 1 Licenses and Media** option, then click **Continue**.
7. On the Migrate Licenses page, select the licenses you want to upgrade, and the contact person, and then click **Continue**.
8. On the Confirmation page, review your selection(s), update the contact person's email address, if applicable, and click **Continue**.
9. On the Software Media page, select the appropriate media delivery method and click **Continue**. A Confirmation page appears stating that an email with the new license(s) will be sent to the selected customer contact.

Purchased after July 20, 2007

If you purchased Presentation Server 4.5, Platinum edition on or after July 20, 2007, you will receive two licenses:

- One consolidated Platinum license that provides you with access to four Platinum functions:
 - Citrix Presentation Server
 - Citrix Application Streaming for Desktops
 - Citrix EdgeSight for Presentation Server
 - Citrix Password Manager
- One SmartAccess Universal license

The SmartAccess Universal license is a concurrent user license that can be used on any of the Access Gateway appliance editions. In other words, the licenses for the SmartAccess feature are edition independent.

Note: The Access Gateway appliance is always sold separately.

These licenses appear on the Complete License Inventory page in the License Management Console.

Upgrading from the Access Suite to Platinum 4.5

The Citrix Access Suite was released as a “bundle” of products; therefore, product licenses could be consumed by different users. Platinum is a family level of XenApp with many new features introduced in XenApp 4.5. Although some of these new features are currently licensed separately, the same users who consume a XenApp license will consume an entire product license enabling access to each product within the family. You have two choices when version upgrading from Access Suite to Platinum 4.5:

- Change all of the licenses included with the Access Suite over to the two licenses used with the Platinum products.
- Break apart the existing Access Suite bundle. If you choose not to adopt the new Platinum licensing behavior, you can “break apart” your suite bundle and version upgrade each product separately with a valid Subscription Advantage membership.

Tip: Version Upgrade means the movement from any previous version of a product to the newest version of the product (for example, moving from XenApp 4.5 to XenApp 5.0). Version upgrading is a benefit of an active Subscription Advantage membership.

Changing all the licenses:

1. From a Web browser, go to <http://www.citrix.com>.
2. Click **Log In** and enter your user ID and password.
3. From the drop-down list, select **License Management**.
4. From the Manage Licenses main menu, select **Upgrade**.
5. Choose the **Upgrade Eligible Products** tab.
6. From the **Select a Product to Fulfill** dropdown list, select **Access Suite**.
7. From the **Select a Product to Receive** dropdown list, select **XenApp Platinum Edition 4.5 with Feature Pack 1**.
8. Click **Submit**.
9. Select all entitlements to receive the version upgrade.
10. Confirm the selections and click through the legal agreement.
11. Either download or order new media. Within 15 minutes, you will receive an email with instructions to return to citrix.com to allocate/receive additional feature licenses.
12. Log on to www.citrix.com to allocate your licenses, generate a license file, download the license file to your license server, and reread the file. See *Obtaining Your License Files* for additional information.

To break apart the Access Suite bundle:

1. From a Web browser, go to <http://www.citrix.com>.
2. Click **Log In** and enter your user ID and password.
3. From the drop-down list, select **License Management**.
4. From the Manage Licenses main menu, select **Upgrade**.
5. Choose the **Upgrade Eligible Products** tab.
6. From the **Select a Product to Fulfill** dropdown list, select **Access Suite**.
7. From the **Select a Product to Receive** dropdown list, select **Convert Access Suite to Individual products**.
8. From the Citrix Presentation Server Migration page, select **Fulfill XenApp Platinum Edition 4.5 with Feature Pack 1 Licenses and Media**.
9. Select all entitlements to break apart and confirm the selections.


Upgrading Legacy Licensing

This topic applies to versions of Citrix products that were released prior to Citrix MetaFrame Presentation Server 3.0. Some of these products include MetaFrame XP or MetaFrame 1.8, MetaFrame Secure Access Manager 2.x, and MetaFrame Password Manager 2.x. For all other products, see Upgrading Licensing.

If you are a current Citrix Subscription Advantage member, you are eligible to version upgrade to the latest release of Citrix products and upgrade your existing licenses to the license system used by these products.

If your Subscription Advantage membership is not current or you did not include membership as part of your initial purchase, you may be eligible to become current with the getCurrent program offered by Citrix. This program allows XenApp (formerly known as Presentation Server) customers who purchased Citrix products without Subscription Advantage or allowed their Subscription Advantage to expire the ability to reestablish a Subscription Advantage membership. Alternatively, you can purchase an edition upgrade to the latest version of the XenApp product line. Contact your local authorized Citrix Solution Advisor to review the purchase options available to you. For information about this program, from the Citrix Web site (www.citrix.com), choose **Products and Solutions**, then **Product Upgrade Center** and select your current Citrix product release. For additional information about Subscription Advantage and its effect upon licensing, see [Subscription Advantage and Licensing](#).

The following checklist details each step in the version upgrade process from the older version of licensing:

	The Upgrade Checklist Steps
	Plan your deployment. This includes choosing hardware for the license server and selecting a redundancy model, if desired. For example, if you are reconsidering your server farm design for XenApp, factor in license server load when planning farms and zones.

	<p>Install Citrix Licensing on the license server computer. You can obtain the Citrix product software (which includes the licensing components installation) from the Citrix downloads site.</p> <p>At the same time as you install the product, you can install the new license server components that appear as an option during the Autorun process. You can also install the license server components separately by accessing a download. After logging on, choose the most recent release.</p> <p>Important: Make note of the computer name that is hosting the new license server. You will need this name when you exchange your licenses and when you generate new license files. Licenses are tied to this name and you are prompted to input the name in a case-sensitive format.</p> <p>See Getting Started with Citrix Licensing for information about installing the licensing components.</p>
	<p>Exchange your older licenses. Log on to citrix.com and exchange your old product license for a license code that can be used to allocate new licenses and generate a license file. After logging on, select Upgrade and follow the onscreen instructions.</p> <p>Important: Make note of the computer name that will be hosting the new license server. You will need this name when you exchange your legacy licenses. Licenses are tied to the license server name and you are prompted to input the name in a case-sensitive format.</p>
	<p>Obtain a license file from citrix.com and copy it to the license server. After you receive a license code you need to decide how many licenses you want to fulfill at this time and generate and download a license file that will be used by the license server.</p> <p>You can find more information and instructions for this step in Obtaining Your License Files.</p>

Using the License Management Console

This section provides details about the License Management Console.

To locate these topics in the **Contents**, at the top right, click the **Show in Table of Contents** button. The highlighted bar moves to the topics.

Introduction

The License Management Console lets you manage and monitor your Citrix Licenses by providing a user interface to the license server. Because the console displays in a Web browser, you can manage licenses from any location on your network.

Use the License Management Console to perform these major tasks:

- Download license files from My Citrix
- Display your license inventory
- Run reports that detail past license usage
- Display real-time information about license usage
- Configure alerts

While the License Management Console provides an easy method of accessing many licensing features, it is an optional component of Citrix Licensing. If you choose not to install it, you can also perform licensing tasks using command-line tools known as license administration commands; however, you cannot generate reports.

Installing the License Management Console

You are prompted to install the License Management Console as part of the Setup program that runs when you install a Citrix product; however, if you decide not to install it at that time, you can install it at a later date by:

- From the Control Panel, running **Add or Remove Programs**
- Launching the Setup program

Citrix Licensing is available from the product media or from the Citrix downloads site.

Note: The License Management Console must be installed on the same server and drive as the license server it manages.

Launching the License Management Console

You can access the License Management Console directly on the server on which it is installed, or remotely from any computer on the network.

Note: Unless you add other user accounts to the License Management Console, you can only access it using the credentials you used when you installed it on the license server. If you installed the License Management Console using your credentials for your local computer, you must use network credentials to add one or more additional user accounts to log on remotely.

The Welcome page is the first page that appears when you launch the License Management Console. It contains the options associated to the remaining pages.

Tip: You can return to the Welcome page at any time by clicking the License Management Console logo that appears on every page.

To Launch the License Management Console from the Local Host

1. At the computer where the License Management Console is installed, log on using the credentials that were configured in the License Management Console. This includes the administrator credentials used to install the component or any other credentials configured within the License Management Console after its installation.
2. From the **Start** menu, navigate to **License Management Console**.

To Launch the License Management Console from a Browser, or Remotely

1. Open your Web browser.
2. Type the following URL in the browser: `http://servername/lmc/index.jsp` where *servername* is the name of the license server.
3. Enter your credentials at the prompt.

Finding the License Management Console Version Number

Every time you upgrade to a new Citrix product, make sure you upgrade your licensing components as well. Check the version numbers for the license server software and the License Management Console. If you do not have the version of licensing your product requires, your product may have issues contacting the license server. Upgrade the licensing software before upgrading your product, if necessary.

1. Launch the License Management Console.
2. On the Welcome page, mouse over the License Management Console logo on the top left corner of the page.

A mouse over label displays the version number.

Controlling Access to the License Management Console

The License Management Console creates the default administrator account based on the credentials you used to log on to the computer when you installed the license server software. Authentication to the License Management Console over a Windows network is based on Windows NT LAN Manager (NTLM) authentication. NTLM authentication is a challenge/response-based method of authentication.

You can configure additional users to access the License Management Console.

Note: You must ensure that at least one user is defined with full access at all times or the console locks all users out. Unless you add other user accounts to the License Management Console, you can only access it using the credentials you used when you installed it on the license server.

When users attempt to access a License Management Console page for which they do not have authorization, they receive the following message:

HTTP Error 403

When users attempt to log on to the License Management Console without access privileges, they receive the following message:

You did not authenticate correctly. Please try again or contact your system administrator.

For each user, you set user permissions for the four major areas of the console: current usage, historical reporting, configuration, and user administration. This allows you to control what tasks users can perform and what features are visible in the License Management Console.

To Add a User Account

1. At the computer where the License Management Console is installed, log on using the credentials that were configured in the License Management Console. This includes the administrator credentials used to install the component or any other credentials configured within the License Management Console after its installation.
2. On the Welcome page, click **User Administration**. The User Administration page appears.
3. Click **Add New User**.
4. Type the user name in the **User** box using a domain name. That is, if you installed the license server in the HR domain, type `HR\joeuser`. The License Management Console authenticates with the user's domain or local account password, depending on whether the account is a local account or a domain account.
5. Select the sections of the License Management Console you want to grant the user permission to access.
6. Click **Submit**.

To Modify a User Account

1. At the computer where the License Management Console is installed, log on using the credentials that were configured in the License Management Console. This includes the administrator credentials used to install the component or any other credentials configured within the License Management Console after its installation.
2. On the Welcome page, click **User Administration**. The User Administration page appears.
3. Click **Change Existing User Access Privileges**.
4. Clear the sections of the License Management Console for which you want to add or revoke the user's access.
5. Click **Submit**.

To Delete a User Account

1. At the computer where the License Management Console is installed, log on using the credentials that were configured in the License Management Console. This includes the administrator credentials used to install the component or any other credentials configured within the License Management Console after its installation.
2. On the Welcome page, click **User Administration**. The User Administration page appears.
3. Click **Change Existing User Access Privileges** (lets you modify existing user permissions).
4. Select **Delete** for the user account you want to remove from the License Management Console.
5. Click **Submit**.

Viewing License Availability

You can see licenses available and in use on the Current Usage page in the License Management Console. (The License Management Console groups products together by product and version [license pools].) You can also see the total number of products connected to the license server by checking the number of connections to the Citrix startup license, a Citrix system file. (The startup license does not affect your license count. It is used to allow Citrix products to communicate with the license server using a continuous open connection.) If you have licenses that expire, you can see more details about license expiration dates on the Complete License Inventory page.

To Display the Current License Usage

1. At the computer where the License Management Console is installed, log on using the credentials that were configured in the License Management Console. This includes the administrator credentials used to install the component or any other credentials configured within the License Management Console after its installation.
2. On the Welcome page, click **View Current Usage Data**.
3. If the Current Usage tab is not already highlighted, click **Current Usage**. The Current Usage page appears.
 - To display more information about your licenses, click **Complete License Inventory**.
 - For information about each field in the table, click **Help**.

To Display Expired Licenses

1. At the computer where the License Management Console is installed, log on using the credentials that were configured in the License Management Console. This includes the administrator credentials used to install the component or any other credentials configured within the License Management Console after its installation.
2. On the Welcome page, click **View Current Usage Data**.
3. Click **Complete License Inventory**.
4. On the Complete License Inventory page, click the **Show Expired Licenses** column name to display the expired licenses at the top of the table. This link can be clicked only when there are expired licenses. If no licenses have expired, the link is inactive.

Note: Lapsed Subscription Advantage memberships continue to appear in the Current Usage and Complete License Inventory pages.

To Determine Subscription Advantage Renewal Dates

1. At the computer where the License Management Console is installed, log on using the credentials that were configured in the License Management Console. This includes the administrator credentials used to install the component or any other credentials configured within the License Management Console after its installation.
2. On the Welcome page, click **View Current Usage Data**.
3. If the Current Usage tab is not already highlighted, click **Current Usage**. The Current Usage page appears.
4. Click **Complete License Inventory**. The date your Subscription Advantage membership expires, by product type, appears on this page.

Setting Alerts

The License Management Console provides passive warnings, known as *alerts*, for the following situations:

- When your organization's license usage is close to exceeding the threshold for the number of licenses you have on a license server.
- When your Subscription Advantage membership is due for renewal.
- When licenses are about to expire. Alerts also appear when you are approaching a license expiration date. An example of a license with an expiration date is an evaluation license.

These alerts appear only in the License Management Console—they do not appear anywhere else. All alerts have two levels of severity—critical and warning. Alerts are raised when the alert threshold you set as a warning or a critical alert threshold is met.

Percent in Use alerts indicate when users in your organization consume more licenses up to the threshold that was set in the License Management Console. More importantly, these alerts can indicate if users are being rejected from logging on to your product servers. If you see any red alerts in the Percent in Use column, license usage met the threshold you set for Percent in Use Alerts. Any users who attempt to log on to your product servers after the Percent in Use reaches 100% are rejected.

Subscription Advantage alerts, allow you to specify when warning and critical level alerts appear according to the number of days preceding the renewal date.

License Expiration alerts work the same way as Subscription Advantage alerts. If you are using a license that expires (for example, an evaluation license), you may want to set a warning for the number of days you anticipate it will take to request a renewal license from Citrix.

Tip: When you are setting alerts, leave enough time for your internal purchase ordering process as well as the Citrix ordering process.

You can see more information about an alert by clicking the alert or its **Details** button, or by displaying the Complete License Inventory page (accessed from the **Current Usage** tab).

To Configure Alert Thresholds

1. At the computer where the License Management Console is installed, log on using the credentials that were configured in the License Management Console. This includes the administrator credentials used to install the component or any other credentials configured within the License Management Console after its installation.
2. On the Welcome page, click **Configure License Server**. The License Files page appears.
3. Click **Threshold Options**.
4. Click **Change**.
5. Modify any of the following:
 - **License Usage:** Lets you specify for a warning or critical level alert to appear when license usage exceeds a percentage that you specify
 - **Subscription Advantage Date:** Lets you specify for a warning or critical level alert to appear n number of days before your Subscription Advantage membership expires
 - **Expiration Date:** Lets you specify for a warning or critical level alert to appear n number of days before your licenses expire
6. Click **Change**.

Important: License Management Console Current Usage alerts do not update automatically. To update the data, click **Refresh** on the Current Usage page.

Generating Usage Reports

This section provides details about generating usage reports using the License Management Console.

To locate these topics in the **Contents**, at the top right, click the **Show in Table of Contents** button. The highlighted bar moves to the topics.

Enabling Report Logging

The report log contains data about licensing activity that can help you understand the rate of license consumption in your environment and plan for future purchases. Before you can generate any historical reports, you must enable the report logging feature. Report logging is inactive by default because report logs can grow excessively large. You can tell if report logging is inactive because the words “Not Configured” appear adjacent to "Report Log" on the File Locations page (**Configure License Server > File Locations**). If a path name appears, reports are enabled.

1. In the License Management Console, return to the License Management Console Welcome screen by clicking the License Management Console logo located in the top left corner on any page.
2. Click **Configure License Server > File Locations > Change**.
3. Enter the path where you want to create your report log and specify a meaningful name for the report log (for example, C:\Program Files\Citrix\Licensing\LS\July05.rl). The name must have an .rl extension. Do not enclose paths in quotation marks when entering them in the License Management Console.
4. Click **Change**.

The report log is enabled and the path where it is stored appears adjacent to Report Log.

Overview

In the License Management Console, you can create reports for past license activity, known as *historical reports*. Historical reports are based on report logs, the encoded record of license usage generated by the license server. Historical reports allow you to view license availability and consumption information over time. You specify the type of product, date range, summary period, and data type you want to use in the report.

The term *summary period* refers to the amount of data to group together in the chart. For example, if you set the summary period to "day," the highest value for the day appears in the chart rather than the variations throughout the day. The term *data type* refers to the units in which the data is measured—in hours, as a percentage, or as a quantity.

The first step in generating reports is to choose one or more report logs upon which you will base the report. After choosing the report log, you can generate either a report based on a specific product or a report summarizing past license activity. If you want to combine data from two report logs in one report, you can do so by choosing both report logs.

Generating a Product or Summary Report

After choosing the report log, you can generate either a report based on a specific product or a report summarizing past license activity. If you want to combine data from two report logs in one report, you can do so by choosing both report logs.

1. In the License Management Console, return to the License Management Console Welcome screen by clicking the License Management Console logo located in the top left corner on any page.
2. Click **Generate Historical Reports > Historical Usage**.
3. On the Report Logs page, click **Add**.
4. From the Available Report Logs list, choose one or more report logs you want to use as the basis for your report, then click **Add**. The report log that you chose appears on the Report Logs page.
5. Click one of the following:
 - **Product Reports** lets you generate reports for a specific product
 - **Summary Reports** lets you generate reports based on past licensing activity for all products licensed by the license server
6. Choose the report settings you want used in your report. For more details, see the *License Management Console online help*.
7. Click **Generate Report**.

Generating a User Report

1. In the License Management Console, return to the License Management Console Welcome screen by clicking the License Management Console logo located in the top left corner on any page.
2. Click **Generate Historical Reports > Historical Usage**.
3. On the Report Logs page, click **Add**.
4. From the Available Report Logs list, choose one or more report logs you want to use as the basis for your report, then click **Add**. The report log that you chose appears on the Report Logs page.
5. Click **User Reports**, choose the product license and the dates, then click **Proceed with Selected Product and Date Range**.
6. On the Generate User Reports page, click **Generate Unique Named User List for Selected Product and Date Range**.
7. On the User List Report page, click **Close** to close the user list and return to the Generate User Reports page.
8. Click **Edit List**, choose the users you want in the report, then click **Submit**.

Note: Citrix recommends that you limit reports to 40 users or fewer. Reports with more than 40 users can be difficult to read.
9. Choose the summary period for the data you want to review; for example, month, minute, hour, or day.
10. Choose the type of data you want for the report:
 - **Peak Count** is the maximum number of licenses checked out during a specified time period, sorted by user name
 - **License Usage Time** is the amount of time a license is in use, sorted by user name
11. Click **Generate Report**.

The report appears in a new window.

Generating a List of Users Using Your Licensing System

1. In the License Management Console, return to the License Management Console Welcome screen by clicking the License Management Console logo located in the top left corner on any page.
2. Click **Generate Historical Reports > Historical Usage**.
3. On the Report Logs page, click **Add**.
4. From the Available Report Logs list, choose one or more report logs you want to use as the basis for your report, then click **Add**. The report log that you chose appears on the Report Logs page.
5. Click **User Reports**, choose the product license and the dates, then click **Proceed with Selected Product and Date Range**.
6. On the Generate User Reports page, click **Generate Unique Named User List for Selected Product and Date Range**.
7. On the User List Report page, click **View CSV Output File**.
8. Depending on your operating system or browser, save or open (and save) the file.

Tip: You can import the .csv file into another application to manage the comma separated values (for example, Excel).

Changing the Name or Location of the Report Log

Before you change the location of the report log, create any new directories that you need. Citrix recommends that you keep the report log on a local drive of the computer on which the license server is running. Do not store the report log on a network share.

When you change the name of an existing report log, a new report log is created. Therefore, there are two logs—one with the old name and the other with the new name. The License Management Console uses the log specified in its File Locations page to capture historical information. You can move the other log (with the old name) to another location for archiving.

Note: You can also temporarily change the location of the report log by using the `lmswitchr` command. For more information, see [Licensing: Using License Administration Commands](#).

1. In the License Management Console, return to the License Management Console Welcome screen by clicking the License Management Console logo located in the top left corner on any page.
2. Click **Configure License Server > File Locations**.
3. In the Report Log section, click **Change**.
4. Modify the name or path (and name) in the **Report Log** text box and click **Change**.

The new information appears adjacent to Report Log and is used for all entries going forward.

Changing the Appearance of a Report

You can customize the appearance of your reports by changing the colors, fonts, and lines used to display them.

1. In the License Management Console, return to the License Management Console Welcome screen by clicking the License Management Console logo located in the top left corner on any page.
2. Click **Generate Historical Reports > Chart Settings > Change**. Under Settings, three options appear: **Colors**, **Fonts**, and **Lines**.
3. Click the option name to jump to the corresponding section on the page, or scroll down to edit the appearance settings.
4. Modify the settings, then click **Submit All Changes**.

The changes appear in your next generated report.

Saving a Product Report

You can save the output of product reports in Report Interchange Format (RIF). After you save a report as RIF, you can import it into programs such as Microsoft Excel (You can import RIF files into Excel by changing their extension from .rif to .csv.) You can also change the appearance of the reports by changing the font, the line weight, and the report color scheme.

You can generate a list of users and their licensing activity from products, such as Password Manager, that employ named user licensing. To generate such reports, use the User Reports feature in the License Management Console. In products that employ concurrent licensing, you can use this feature to generate reports according to device.

1. After generating a product report, from the report page, click **View CSV Output File**.
2. Save the report on your local device or another network location.

Overwriting a Report

You can configure the report log to be overwritten automatically or to save all data (appending it to existing information) every time you restart the license server or the Citrix Licensing service. To do this, you must change the REPORTLOG option in the Options file (you cannot do this in the License Management Console).

Maintaining a Report Log

When report logging is active, logs can grow excessively large if they are not archived on a regular basis. Excessive report log growth can negatively impact your licensing system in two ways:

- By consuming hard drive space
- By slowing down report generation

Report logs sizes vary according to the number and frequency of users connecting to products using the license server. Log size grows every time a license is checked in or out. The following formula lets you project the growth of your report log:

The number of users connecting to the Citrix products pointing to a license server x the number of check-ins and check-outs you anticipate they will have in a day = the anticipated size of the report log.

Note: Citrix recommends that you estimate growth by watching report log growth over a period of time in your environment and not relying on this formula.

Use the following guidelines to maintain your logs:

- Save your report logs according to blocks of time over which you will want to run reports-weekly, monthly, and so on.
- Rotate and archive your report logs regularly.

Caution: Do not let your report logs grow larger than 50MB. Report logs larger than 50MB can seriously degrade the speed at which the License Management Console generates reports.

- Archive report logs using a standard file compression tool, such as WinZip, and moving the archived report log to a new location. (After you archive a report log, you can no longer write to it.)
- Start each report log with a new meaningful name. Incorporate the time interval in the name of the report—it is easier to choose report logs from the License Management Console to base reports on when their names provide this type of information.
- Specify that the report log overwrite itself whenever you restart the license server.
- If you clustered your license server and you rename the report log, do not give it the same name as either of the servers in a license-server cluster. If you do, the logs cannot be backed up properly.

Discovering License Logon Rejections

When red (critical) alerts appear on the Current Usage page of the License Management Console, it can indicate one of two problems:

- The product server could already be rejecting attempts to log on because the percentage of licenses in use is at 100%
- The percentage of licenses in use is approaching the level set as the critical threshold

You can foresee potential license logon rejections by regularly monitoring two report sources:

- **Current Usage page:** The Current Usage page displays the number of licenses that are available for use on a license server. Because it provides real-time information, you should use it in conjunction with Historical Usage reports to foresee problems.
- **Historical usage reports:** Run historical usage reports to see license availability and consumption information over time. Running reports over a quarter, for example, can indicate if license consumption is increasing. In large environments, Citrix recommends that you run licensing reports when you are planning upgrades and equipment acquisitions.

To Update License File Data

After you edit any license file or copy a new file to the license server, you must force the license server to reread the file before any changes can take effect.

To update the license data stored on the license server, either use the **Update license data** feature in the License Management Console, explained below, or the `lmreread` license administration command (see [Rereading License and Options Files \(lmreread\)](#)). Using the **Update license data** feature allows you to update all the files simultaneously.

1. At the computer where the License Management Console is installed, log on using the credentials that were configured in the License Management Console. This includes the administrator credentials used to install the component or any other credentials configured within the License Management Console after its installation.
2. On the Welcome page, click **Configure License Server**. The License Files page appears.
3. Under the License Files heading, click **Update license data**.

Note: If you have updated the options file, you can also click **Re-read** on the File Locations page.

To Locate the Options File

The License Management Console provides an easy way to locate the options file for editing; however, you should only open the file using Windows Explorer.

Attention: If you change the location of the options file, you can no longer manage it through the License Management Console.

1. At the computer where the License Management Console is installed, log on using the credentials that were configured in the License Management Console. This includes the administrator credentials used to install the component or any other credentials configured within the License Management Console after its installation.
2. On the Welcome page, click **Configure License Server**. The License Files page appears.
3. Click **File Locations**. The Options file path appears.

To Update Options File Data

If you change the options file, you must force the license server to reread the file for changes to take effect. You can reread the file using the License Management Console or by using the `lmreread` License Administration command (see [Rereading License and Options Files \(lmreread\)](#)). If you choose to use the License Management Console, you can perform the procedure for updating all the license files (which will update the options file as well) or you can perform a reread only on the options file.

1. At the computer where the License Management Console is installed, log on using the credentials that were configured in the License Management Console. This includes the administrator credentials used to install the component or any other credentials configured within the License Management Console after its installation.
2. On the Welcome page, click **Configure License Server**. The License Files page appears.
3. Click **File Locations**. Under the Options File path name, click **Re-read**.

Accessing the License Management Console for a Clustered License Server

You can administer a cluster-enabled license server by using the License Management Console. When you use the License Management Console, you are administering the active node of the cluster only.

Connect to the License Management Console by using `http://clustername/lmc/index.jsp`. Alternatively, you can use the shared cluster IP address of the clustered computer (`http://cluster_IP_address/index.jsp`).

If you use LOCAL user accounts when you access the License Management Console on a cluster, add that account to both computers and add each computer to the License Management Console.

For example, create a LOCAL account to run the reports, call the account `REPORTS_USER`, and ensure that it exists on both cluster nodes.

Add the following users to the License Management Console:

- `BH-Node1\REPORTS_USER`
- `BH-Node2\REPORTS_USER`

Where `BH-Node1` and `BH-Node2` are the names of the computers that you used for the cluster and `REPORTS_USER` is the account that you created.

Note: If you do not add the lines, the `REPORTS_USER` may not be able to log on to the License Management Console if a cluster failover occurs.

Using License Administration Commands

While the administration console provides an easy method of accessing many licensing features, you can also perform licensing tasks using license administration commands. Situations when you might want to use the license administration commands include the following:

- When you did not install the console.
- When you are performing advanced operations on the license server that are not available in the console. Such operations include diagnosing check-out problems (lmdiag), releasing a hung license from a license pool (lmremove), and temporarily saving the report log to a new file in another location (lmswitchr).

Table of Commands

The following table provides an overview of the license administration commands that are stored in the C:\Program Files\Citrix\Licensing\LS directory by default:

Utility	Description
lmdiag	Diagnoses license check-out problems.
lmdown	Gracefully shuts down the License Manager and Citrix vendor daemons.
lmgrd	License Manager daemon that starts and manages the Citrix vendor daemon, changes the debug log location and name, and displays the lmgrd version information.
lmhostid	Reports the host ID of the server on which Citrix Licensing is running.
lmpath	Allows you to add, remove and modify the existing licensing files location. Note: Do not use this command. Citrix sets the optimal path settings. This command is used for debugging purposes only.
lmremove	Releases a hung license to the pool of free licenses.
lmreread	Causes the License Manager daemon to reread the license file and start the Citrix vendor daemon.
lmstat	Displays the status of a license server.
lmswitchr	Switches the report log to a new file name.
lmutil	Displays a list of licensing utilities.
lmver	Displays version information for the licensing binaries.

lsportutil	Allows you to modify existing port numbers. Note: This utility is only available with Citrix Licensing, versions 11.5 and later. For more information, see To Modify and Update Port Numbers .
------------	--

Formatting License Commands

The following table provides formatting conventions for the license administration commands:

Convention	Description
Bold	Bold text indicates a command or switch.
<i>Italic</i>	Italicized text indicates a variable that you need to replace with a value; for example, in the expression: <code>lmswitchr -c <i>license_file_list</i></code> Before you run the command you must replace <i>license_file_list</i> with the names of one or more license files.
[square brackets]	Square brackets around text indicate options that can be added to the command (bolded) or that text within the brackets needs to be replaced.

Universal Arguments

The following table provides valid arguments for most license administration commands:

Argument	Description
-all	Applies the command to all of the license servers on the network.
-c	Lets you specify license file(s) or license server port and host name.
-c @ <i>localhost</i>	Most license administration commands need to know the path to the license file. You must specify the localhost with a -c @ <i>localhost</i> argument. If you specify the path without a license file name, the command applies to all the license files in the directory. For some utilities, you can enter more than one license file path by separating each path with a semicolon. Path names that include spaces must be enclosed in double quotes.
-h	License <i>handle</i> , as reported by <code>lmstat -a</code> . The license handle is a number used to identify a specific checked out license.
-help	Displays usage information and exits.
-s [<i>server</i>]	Displays the status of all license files listed on the license server or on all license servers, if <i>server</i> is not specified.

Using License Administration Commands

-verbose	Displays a longer description for all errors found.
----------	---

Diagnosing Checkout Problems (lmdiag)

lmdiag allows you to diagnose problems when a product cannot check out a license. In particular, you can test if your licenses are valid and if the license server is running. When you run this utility, it attempts to check out a license.

You can also use the lmdiag utility to see if a specific type of license is working. For instance, you can run lmdiag on your Citrix XenApp server (formerly known as Citrix Presentation Server), Advanced edition licenses only by specifying `MPS_ADV_CCU` as an argument.

Syntax

```
lmdiag -c license_file_list [-n] [feature[:keyword=value]]
```

Argument	Description
<code>-c <i>license_file_list</i></code>	Diagnoses the specified files.
<code>-n</code>	Runs in non-interactive mode; lmdiag does not prompt for any input in this mode.
<code><i>feature</i></code>	Limits the feedback to the specified feature.
<code>keyword=value</code>	If a license file contains multiple lines for a particular feature, the result is limited to the line containing the text value. For example: lmdiag -c @localhost MPS_ENT_CCU:HOSTID=LICSERV01 attempts a checkout on the line with the host ID "LICSERV01." Keyword is one of the following: VERSION, HOSTID, EXPDATE, KEY, VENDOR_STRING, ISSUER

If no feature is specified, lmdiag operates on all features in the license files in your list. lmdiag displays information about the license, then attempts to check out each license. If the check out succeeds, lmdiag indicates success. If the check out fails, lmdiag gives you the reason for the failure. lmdiag attempts to connect to each TCP/IP port on the license server. It detects if the port number in the license file is incorrect. lmdiag lists each TCP/IP port number that is listening, and if `-c license_file_list` is specified, diagnoses the specified files.

lmdiag does not contact the computer running the Citrix product when it attempts to check out licenses. lmdiag indicates only if there are problems on the license server. That is, your product cannot check out licenses because it is pointing to the wrong license server (for

example, a license server that does not have licenses for that product on it), but lmdiag does not detect this problem. lmdiag reports that it can check out licenses when the Citrix product is pointing to the wrong license server.

Stopping Daemons (lmdown)

The lmdown utility shuts down the License Manager daemon and the Citrix vendor daemon on your license server or all license servers on your network.

Syntax

```
lmdown -c license_file_list [-vendor CITRIX] [-q] [-all]
```

Argument	Description
-c <i>license_file_list</i>	Use the specified license files. Note that specifying -c <i>license_file_list</i> is always recommended with lmdown.
-vendor CITRIX	Shut down only the Citrix vendor daemon. The License Manager daemon continues to run.
-q	Do not prompt or print a header. Otherwise lmdown asks "Are you sure? [y/n]: ."
-all	If multiple servers are specified, automatically shuts down all of them. -q is implied with -all.

The lmdown utility must be run on a license server. You can use -all to shut down all of the license servers on your network.

If lmdown encounters more than one server (for example if -c specifies a directory with many *.lic files) and -all is not specified, the utility displays a choice of license servers to shut down. You can shut down remote license servers by using -c and specifying the name of the license server.

Note: If you use the Task Manager to terminate the License Manager daemon (Citrix Licensing Service), stop the lmgrd process first, then stop the Citrix vendor daemon process.

To stop and restart the Citrix vendor daemon only, use lmdown -c @localhost -vendor CITRIX, then use lmreread -c @localhost -vendor CITRIX to restart the vendor daemon.

Managing the License Manager Daemon (lmgrd)

The *lmgrd* is the License Manager daemon (on Windows platforms, it is known as the Citrix Licensing Service) which is one of two daemons comprising the license server (the other daemon is called the Citrix vendor daemon). The License Manager daemon handles the initial point of contact with the Citrix product and refers all license requests to the Citrix vendor daemon.

The *lmgrd* utility:

- Starts and maintains the Citrix vendor daemon.
- Allows you to change the name and location of the debug log. This log is used to troubleshoot license server configuration information and *lmgrd* and Citrix vendor daemon errors.
- Displays the version and copyright information for the *lmgrd*.

Syntax

```
lmgrd -c [license_file_list] -l [+]debug_log_path
```

Argument	Description
-c <i>license_file_list</i>	Use the specified license files.
-l + <i>debug_log_path</i>	Write the debug log to the specified log file. The option uses the letter l, not the numeral 1. Prepending <i>debug_log_path</i> with + appends logging entries (otherwise the file is overwritten each time the Citrix vendor daemon is started).
-v	Display the version number and copyright information for <i>lmgrd</i> .
-help	Display usage information.

Checking Host Names (lmhostid)

The `lmhostid` utility returns the host ID of the license server. You can use the command to check the host name of your license server. You can open a license file and compare the host name in the license file to that of your license server.

Note: Citrix Licensing, versions 11.5 and later for Windows allows you to display multiple host IDs if there are more than one host.

Syntax

`lmhostid -bindingidentifier`

Argument (<i>bindingidentifier</i>)	Description
-ether	Used for product licenses that are tied to the MAC address of the appliance.
-internet	Used for Windows-based Citrix product software licenses that require a TCP/IP address.
-hostname	Used for Windows-based Citrix product software licenses that are tied to the <i>hostname</i> of the license server. Note: The parameter <i>hostname</i> is case-sensitive and must match your license server name exactly.

Releasing Licenses (lmremove)

The `lmremove` utility allows you to release a *hung* Citrix product license. A hung license is a checked out license that is not returned to the pool of available licenses when a product terminates unexpectedly. If a Citrix product has one or more licenses checked out and it terminates, these licenses may not be checked back in automatically and, therefore, are hung (that is, the licenses are not in use, but they are still checked out). Hung licenses are returned automatically to the pool, but the `lmremove` utility returns the licenses immediately.

This command can be run against a specific license file or all of the license files in a directory. If you run `lmremove` against all of the license files in a directory and there are licenses in that directory that the Citrix product is currently using, the product checks out the licenses it was using again shortly after `lmremove` releases them.

Syntax

```
lmremove -c license_file_list feature citrix_product_name hostname display
```

-or-

```
lmremove -c license_file_list -h feature server_host port handle
```

Argument	Description
<code>-c <i>license_file_list</i></code>	List the license files you want to release.
<code><i>feature</i></code>	Name of the feature checked out by the product. For example, <code>MPS_ENT_CCU</code> is the feature name for XenApp (formerly known as Presentation Server), Enterprise edition using the concurrent user model.
<code><i>citrix_product_name</i></code>	Name of the product from which you are removing a license count; for example, <code>MPS</code> for XenApp and <code>MPM</code> for Password Manager.
<code><i>hostname</i></code>	Name of the server where the Citrix product is running.
<code><i>display</i></code>	Name of the product from which you are removing a license; for example, <code>MPS</code> for XenApp and <code>MPM</code> for Password Manager.
<code><i>server_host</i></code>	License server hostname.
<code><i>port</i></code>	TCP/IP port number where the license server is running, as reported by <code>lmstat -a</code> .

<i>handle</i>	License handle, as reported by <code>lmstat -a</code> . The license handle is a number used to identify a specific checked out license.
---------------	---

The *citrix_product_name*, *hostname*, *display*, *server_host*, *port*, and *handle* information must be obtained from the output of `lmstat -c @localhost -a`.

The `-h` variation uses the *server_host*, *port*, and license *handle*, as reported by `lmstat -a`. Consider this example `lmstat -a` output for a Presentation Server, Enterprise edition license:

```
Users of MPS_ENT_CCU: (Total of 30 licenses issued;  
Total of 1 license in use)  
"MPS_ENT_CCU" v2004.1201, vendor: CITRIX  
floating license
```

```
MPS mps_server1 MPS 25fb337e:MPSCCLIENT (v2004.0227)  
(license_server1/27000 101), start Tue 3/16 16:59
```

In this example, the first few lines of output show the number of the XenApp Enterprise edition licenses used.

The line beginning with `MPS` shows the details for a checkout of the XenApp Enterprise edition license. The *citrix_product_name* is `MPS`, the *hostname* is `mps_server1`, the *display* is `MPS`, the *server_host* is `license_server1`, the TCP/IP *port* is `27000`, and the license *handle* is `101`.

To remove this license, issue one of the following commands:

```
lmremove -c @localhost MPS_ENT_CCU MPS mps_server1 MPS
```

—or—

```
lmremove -c @localhost -h - MPS_ENT_CCU license_server1 27000 101
```

Rereading License and Options Files (Imreread)

The Imreread utility causes the Citrix vendor daemon to reread changes to the license file and the options file. After rereading, the Citrix vendor daemon uses the new settings and/or licenses going forward. If report logging is enabled, any report log data still in the Citrix vendor daemon's internal data buffer is flushed.

Syntax

```
Imreread -c license_file_list [-all] [-vendor CITRIX]
```

Argument	Description
-c <i>license_file_list</i>	Use the specified license files.
-all	If more than one lmgrd is specified, instructs all License Manager daemons to reread.
-vendor CITRIX	Specifies for the Citrix vendor daemon to be restarted.

The Imreread utility cannot be used remotely; run it locally on the license server.

Example

```
Imreread -c C:\Program Files\Citrix\Licensing\MyFiles\CITRIX.lic -vendor CITRIX
```

Determining Licensing Status (lmstat)

The lmstat utility helps you monitor the status of all network licensing activities and provides you with information about license check outs, including:

- The product that checked out one or more licenses
- The check out data
- The version of the license file

Note: Click here for the recommended procedure for determining your license server version number.

- The license server name and port
- The date the license was checked out
- Information about the Citrix vendor daemon status and the license files

lmstat displays information that it receives from the license server. lmstat displays only one usage of the license, even if there are multiple connections sharing that license.

Syntax

```
lmstat [-a] [-c license_file_list] [-f [feature]] [-i [feature] [-s[server] [-S [CITRIX]] [-t timeout_value]]
```

Argument	Description
-a	Displays all information.
-c <i>license_file_list</i>	Uses the specified license files.
-f [<i>feature</i>]	Displays the products using a feature (product license). If <i>feature</i> is not specified, usage information for all features is displayed.
-i [<i>feature</i>]	Displays information from the INCREMENT line for the specified feature (product license) or all features if <i>feature</i> is not specified.
-s [<i>server</i>]	Displays status of all license files listed on the license server or on all license servers, if <i>server</i> is not specified.
-S [CITRIX]	Lists all product servers using the features (product licenses) served by the Citrix vendor daemon.

Determining Licensing Status (lmstat)

<code>-t <i>timeout_value</i></code>	Sets connection time-out to <i>timeout_value</i> . This limits the amount of time lmstat spends attempting to connect to the license server.
--------------------------------------	--

The output of `lmstat -a` looks similar to:

```
License server status: 27000@license_server1
License files on license_server1: C:\Program Files\Citrix\Licensing\MyFiles\citrix_startup.lic:
C:\Program Files\Citrix\Licensing\MyFiles\citrixlic_20031001094430.lic:
```

```
license_server1: license server UP (MASTER) v9.2
```

```
Vendor daemon status (on license_server1):
```

```
CITRIX: UP v9.2
```

```
Feature usage info:
```

```
Users of CITRIX: (Total of 5000 licenses issued; Total of 1 license in use)
```

```
"CITRIX" v2002.0101, vendor: CITRIX
```

```
floating license
```

```
MPS mps_server1 MPS MPS_ENT_2004.0227 (v1.0)
```

```
(license_server1/27000 101), start Tue 3/16 16:59
```

```
Users of MPS_ENT_CCU: (Total of 30 licenses issued; Total of 1 license in use)
```

```
"MPS_ENT_CCU" v2004.1201, vendor: CITRIX
```

```
floating license
```

```
MPS mps_server1 MPS 25fb337e:MPSCLIENT
```

```
(v2004.0227) (license_server1/27000 203), start
```

```
Wed 3/17 11:56
```

The following represents a breakdown of the information contained in the `MPS_ENT_CCU` line of the `lmstat` output:

MPS	<i>citrix_product_name</i>	The name of the Citrix product that has the license checked out.
mps_server1	<i>hostname</i>	Computer where the Citrix product is running.
MPS	<i>display</i>	The name of the Citrix product that has the license checked out.
license_server1	<i>server_host</i>	Computer where the license server is running.
27000	<i>port</i>	TCP/IP port where the license server is running.
203	<i>handle</i>	License handle. The license handle is a number used to identify a specific checked out license.
start Wed 3/17 11:56	<i>checkout_time</i>	Time that this license was first checked out.

Determining Licensing Status (lmstat)

Note: lmstat -a can potentially generate a lot of network activity in systems with many product licenses checked out.

You can use lmstat -a to verify license check out data.

Temporarily Rotating Report Logs (lmswitchr)

The lmswitchr utility temporarily changes the report log file by closing the existing report log and starting a new report log with a new file name. It also starts a new report log file if one does not already exist. By default, report logging is turned off.

Syntax

```
lmswitchr -c license_file_list CITRIX new_report_log
```

Argument	Description
-c <i>license_file_list</i>	Use the specified license files.
CITRIX	The Citrix vendor daemon.
<i>new_report_log</i>	Path to new report log file.

If report logging is not enabled, lmswitchr tells the Citrix vendor daemon to write its report log output to *new_report_log*. If report logging is already enabled, lmswitchr tells the Citrix vendor daemon to stop writing to the original report log file and start writing to the new report log.

This utility only changes the report log location temporarily. To change the report log location permanently, change the report log path and/or filename in the options file (on the REPORTLOG line).

The effect of lmswitchr lasts until the options file is reread or until the Citrix vendor daemon is shut down. When the Citrix vendor daemon is restarted or the options file is reread, the daemon looks for the REPORTLOG line in the options file. If the REPORTLOG line is not found, the Citrix vendor daemon stops writing a report log. If the REPORTLOG line is found, the Citrix vendor daemon starts writing the new report log to that file.

Displaying the List of Licensing Utilities (lmutil)

The lmutil utility displays a list of licensing utilities.

Syntax

lmutil

Modifying Port Numbers for Firewalls

The following table details the port numbers that you may need to change.

Note: The information in this topic does not cover tasks for the license server, versions 4.5 or earlier. If you have a license server released previously to version 11.5, Citrix recommends that you upgrade your licensing components. Otherwise, refer to the [Security and Firewalls white paper](#) in the Knowledge Center for information about port numbers and procedures for manually changing them.

Component	Reason for Change
Citrix vendor daemon	<p>Responsible for the core operations of the license server which includes license allocation.</p> <p>By default, the port on which the Citrix vendor daemon runs is 7279. You should not change this port number unless you have a firewall that uses another port number, or if this number is already in use.</p> <p>Note: In previous versions of Citrix Licensing, the port on which the Citrix vendor daemon communicated changed dynamically—the Citrix Licensing service chose a new port every time it restarted. If you have a previous version of licensing, refer to the Security and Firewalls white paper in the Knowledge Center.</p>
License server	<p>Handles the initial communication between the products, starts the vendor daemon and relays check out and check in requests to the vendor daemon.</p> <p>By default, the license server daemon communicates over the default TCP port of 27000. If 27000 is already in use on your license server, you must change the port number.</p>

The license server reads the two port numbers in all your Citrix license files. The port numbers in all the files must be identical; otherwise, the Citrix Licensing service will not restart and the products will be unable to communicate with the license server.

Note: The license files must be in one of the following locations:

- For a 32-bit server: C:\Program Files\Citrix\Licensing\MyFiles\
- For a 64-bit server: C:\Program Files (x86)\Citrix\Licensing\MyFiles\

During the installation of the Citrix License Server, you are provided with the default port numbers (see the table above) and the opportunity to change them if needed. After the installation, if you need to change the port numbers or you do not want the Citrix LS Port Updater service to run, use the LS Port utility.

As of the release of the license server, Version 11.5, Citrix provides an LS Port utility that you can use to change the port numbers in your files. You should run this utility in the following instances:

- You have a Subscription Advantage membership and you are adding renewal files
- You change your firewall port number

To determine which version of the license server you have installed, see the Getting Started section.

If you need to change either the License Server or Vendor Daemon port numbers, run the License Server Port utility to enter the new numbers and update the license files.

Port Updater Service

The Citrix LS Port Updater service is included with the license server Version 11.5 or later. This service is installed during the setup of the license server and runs unless you stop the service. It checks the existing port numbers in the Citrix Start-up license file in the MyFiles directory and replicates the port numbers in the remaining license files. If you are adding new files to the license server, you do not need to perform any action as long as the service is running; however, if you want to modify the existing port numbers, or you do not want the service to run, you should use the LS Port utility also provided with the installation of the license server Version 11.5 or later to modify the files.

Guidelines for Modifying Port Numbers

- Citrix recommends that you back up your license files before you change any port numbers. License files are stored in:
 - For a 32-bit server: `C:\Program Files\Citrix\Licensing\MyFiles`
 - For a 64-bit server: `C:\Program Files (x86)\Citrix\Licensing\MyFiles`
- The files end with the `.lic` extension.
- For Access Gateway (only), you do not need to edit the license files; change the port numbers using the Administration Tool.
- If you have a Subscription Advantage membership for any products on a license server that is configured for use with a firewall, you will acquire new license files according to the terms of membership schedule. When you place new license files on your license server, they need to be updated with your customized port numbers (if you have changed any of them). Citrix License Server Version 11.5 or later provides the LS Port Updater service that monitors the MyFiles directory and replicates the port numbers in the license files for you automatically.

To Modify and Update Port Numbers

1. At the license server, open a command window and navigate to `C:\Program Files\Citrix\Licensing\LS` (for 32-bit) or `C:\Program Files (x86)\Citrix\Licensing\LS` (for 64-bit).
2. Type: `lsportutil /set /lsport num /vendor num` where *num* is the new port number. For example, if you want to change the vendor daemon number to 24000,
type: `lsportutil /set /lsport 27000 /vendor 24000`
3. Restart the Citrix Licensing service.

Note: Even if you change only one port number, you must specify both of the numbers in the command.

Tip: To find out which port numbers are currently defined, type: `lsportutil /query`.

Accessing the License Server through a Firewall

Determine if you need to place a firewall between the license server and any product servers. Citrix recommends that you determine if your products will communicate with the license server through a firewall before installing licensing. Where you install the license server can be impacted by firewall considerations.

If there is a firewall between your product or Password Manager Agent and the license server, you need to configure port numbers. This configuration process entails:

- Perform the initial preparation. Determine which port numbers you need to change and have a list of which port numbers your setup uses. See the table in the [Modifying Port Numbers for Firewalls](#) section for information about which ports you may need to modify.
- Ensure that all the licensing text files have the correct port numbers. The license server Version 11.5 or later provides a utility that you use to update all the files. See the [Modifying Port Numbers](#) section.
- Open up the firewall ports. Open any ports on the firewall that you modified so that traffic can flow. For Window Server 2008, the license server Version 11.5 or later configures the built-in firewall automatically (using the Citrix LS Port utility).
- Modify the product-side settings. Your Citrix product must be configured with the same port numbers as those in the license files. If you do not change the port number referenced in the product, the product cannot contact the license server. You can change the product-side settings during and after installation of the product. See your product's administrator's guide for information about these settings.

Understanding and Editing License Files

When you install the license server, two files are installed: `citrix_startup.lic` and `options.lic`. To license your Citrix products, you add an additional type of file, a license file.

Startup License File

The startup license file (`citrix_startup.lic`) is a text file that is used by Citrix products to communicate with the license server using a continuous open connection. Every five minutes the license server and the product send a heartbeat message to each other to verify that they are mutually communicating. If the product and the license server have been exchanging heartbeat messages but there is an interruption in the exchange (for example, there is a power failure), the product goes into a *grace period*. The startup license does not affect your license count. Do not edit this file.

Note: Some Citrix products can operate in a disconnected mode (not connected to the server). These products allow a user to check out a license and operate the product for a preconfigured period of time that is set by the administrator. In this case, heartbeat messages are not exchanged. One example of disconnected mode is when a user checks out a Password Manager license for a laptop, and then uses the laptop when it is not connected to the server.

You can control different aspects of your licensing operations and environment by customizing the license file.

License File

The license file is a text file that contains product licensing information as well as the license server name (or other binding identifier), the License Manager daemon port number, the Subscription Advantage membership renewal date (also known as the Subscription Advantage Expiration date), the license expiration date (if applicable), and other system information. All of this information is encrypted with a digital signature. When you purchase a Citrix product, you go to the `citrix.com` web site to download a license file. You can have more than one license file per license server. The license file resides in the `C:\Program Files\Citrix\Licensing\MyFiles` directory on a 32-bit server, or `C:\Program Files(x86)\Citrix\Licensing\MyFiles` directory on a 64-bit server, where it is referenced by the license server. The license server uses this file(s) to determine whether or not to grant a license to a Citrix product.

Caution: Any modifications, apart from those mentioned, render the license files unusable.

Moving License Files

If you need to move your license files to a server with a different hostname or Ethernet address, you cannot use the license files that you downloaded for the old license server. Create new license files that reference the new server name by reallocating the licenses, and regenerating and copying the new file to the new license server.

See [Reallocating License Files](#) for more information.

License File Format

Understanding the license file format is an essential prerequisite to understanding the number and purchase dates of the licenses you own, setting up firewalls, and customizing license server operations through the options file.

Citrix License files employ the following naming convention: license_20040322134450.lic. The last part of the file name is a date stamp with the following format: YYYYMMDDHHMMSS. The date stamp corresponds with the date the file is downloaded, and, consequently, lets you distinguish between different licenses you downloaded.

Note: You can change the name of the license file but it must have a .lic extension.

License files are composed of lines that list specific information, such as the server name (SERVER) or quantity of licenses (INCREMENT). These lines begin with words denoting their purpose in uppercase letters, such as VENDOR, SERVER, INCREMENT, USE_SERVER, and so on.

The following sections provide in-depth information about the following elements of license file syntax: the SERVER line, VENDOR line, USE_SERVER line, INCREMENT line, and UPGRADE line. While the term *feature* is used in the options and license file syntax, in this document, the term *product license* is used whenever possible for clarity.

In each section, details are given specifying if you can modify the lines. In general, you can only modify the port numbers.

Note: Citrix recommends that you upgrade the license server to the most current version. Versions 11.5 and later contain a new port service that automatically updates the port numbers in all license files with the port numbers. The new license server is backward compatible and will work with older products and license files. You can find that latest license server on the Citrix Website in the Downloads area.

Example license file with numbers corresponding to the explanations following the example:

```
# This file is in UTF-8 format.
#
SERVER this_host HOSTNAME=license_server1 (1)
VENDOR CITRIX (2)
USE_SERVER
INCREMENT MPS_ENT_CCU CITRIX 2006.0428 01-may-2006 1000 \
  VENDOR_STRING=;LT=Retail;GP=720;CL=ENT,ADV,STD;SA=0;ODP=0 \
  DUP_GROUP=V ISSUED=12-Mar-2004 NOTICE="eMail Test - Citrix" \
  SN=LA-0000150712-86261:872 START=11-mar-2004 SIGN="0885 F320 \
  DAE2 EE72 68A4 92FC 86C2 3648 A2CF 346D A88F BD44 TS111\
  D790 1830 7535 553C B774 DE8C 1F5D A5D3 D5F6 D078 217B BH050 \
  A14C 2893 7756 ACF5"
(3)
#
#[English] (4)
#CITRIXTERM FEATURE 2.0 MPS_STD_CCU EN Citrix Presentation Server Standard|Concurrent User
#CITRIXTERM FEATURE 2.0 MPS_ADV_CCU EN Citrix Presentation Server Advanced|Concurrent User
#CITRIXTERM FEATURE 2.0 MPS_ENT_CCU EN Citrix Presentation Server Enterprise|Concurrent User
#
```

1 SERVER Line

The SERVER Line. The SERVER line specifies the binding identifier (also known as the *hostname*) of the license server and the TCP/IP port number of the License Manager daemon (lmgrd.exe). No port number after the binding identifier means it is using the default port number, 27000.

Caution: Do not modify the binding identifier on the SERVER line; otherwise, the license file will not work.

Syntax

```
SERVER this_host ether [port]
```

or

```
SERVER this_host HOSTNAME=hostname [port]
```

Parameters	Description
<i>ether</i>	The MAC address of the appliance on which the license server is running. Do not edit this string.
<i>hostname</i>	The name of the computer on which the license server is running. Do not edit this string.
<i>port</i>	Port number used by the License Manager daemon. A valid number is any unused port number between 0 and 64000. If no port number is specified, the default port of 27000 is used. You can modify this port number; however, you must ensure that all the license files have the same port number. See Modifying Port Numbers for Firewalls .

Example

```
SERVER this_host HOSTNAME=license_server1
```

In this example, there is no port number after the server HOSTNAME because the license server is using the default port of 27000. If an alternate port number is specified (for example, 24000, the line would be:

```
SERVER this_host HOSTNAME=license_server1 24000
```

See [Modifying Port Numbers for Firewalls](#) for information about changing port numbers.

2 VENDOR Line

The VENDOR line specifies the Citrix vendor daemon name, path, options file path, and port number. The License Manager daemon uses this line to start the Citrix vendor daemon, and the Citrix vendor daemon reads this line to find the options file.

Important: For license server versions prior to the 11.5 version, a random port number is used. Beginning with the license server, version 11.5, the default port number is 7279.

If the Citrix daemon is using a random TCP/IP port, the line appears only as VENDOR CITRIX. (That is, the options file path and the port number do not appear beside the words “VENDOR CITRIX.”).

Syntax

```
VENDOR CITRIX [vendor_daemon_path]\[[options=]options_file_path] [[port=]port]
```

Field	Description
VENDOR CITRIX	Name of the Citrix vendor daemon. Do not edit this name.
vendor_daemon_path	Path to the executable for the Citrix vendor daemon. Citrix recommends that you do not change this path.
options_file_path	Full path to the options file for the Citrix vendor daemon. Citrix recommends that you do not change this path.
port	Citrix vendor daemon TCP/IP port number. If a TCP/IP port number is specified on the VENDOR line, there may be a delay restarting the Citrix vendor daemon until all the clients close their connections to the vendor daemon. You can modify this port number; however, you must ensure that all the license files have the same port number. See Modifying Port Numbers for Firewalls for information about changing port numbers.

Example

```
VENDOR CITRIX options="C:\Program Files\Citrix\Licensing\MyFiles\CITRIX.opt" Port= 7279
```

See [Modifying Port Numbers for Firewalls](#) for information about changing port numbers.

3 INCREMENT Lines

An INCREMENT line describes the license required to use a product. License files (*.lic) contain one or more INCREMENT lines. Each INCREMENT line makes up a user-specified allocation of product and license (users, connections) counts..

Each increment line contains a signature based on the data in that line, the hostids specified in the SERVER line(s), and data chosen by Citrix. INCREMENT lines use a backslash (\) to wrap long lines of text.

Syntax


```
INCREMENT feature vendor SA_expiry_date exp_date num_lic \
SIGN=sign [optional_attributes]
```

Caution: Do not modify the six fields after the INCREMENT line keyword; they are required and have a fixed order.

The following table explains these fields in the order they appear:

Field	Description
<i>feature</i>	The product license. Do not edit this line.
<i>vendor</i>	Indicates this license is for a Citrix vendor daemon. Do not edit this line.
<i>SA_expiry_date</i>	<p>Indicates the date until which you are entitled to product version upgrades. If you do not have a Subscription Advantage membership or this is not a Subscription Advantage license, the date indicates when you ordered or redeemed the license. Do not edit this line.</p> <p>Note: If you renewed your Subscription Advantage membership and received an upgrade license, two dates are listed.</p> <ul style="list-style-type: none"> • The first date is the date when the Subscription Advantage membership was originally purchased • The second date is the SA_expiry_date <p>Example:</p> <pre>INCREMENT MPS_ENT_CCU CITRIX 2005.0311 2007.0311 permanent 1000 \</pre> <p>See Upgrade Lines for additional information.</p>
<i>exp_date</i>	<p>Expiration date of license in the format dd-mmm-yyyy, that is, 07-may-2006. Do not edit this line.</p> <p>Note: If the exp_date field contains the string “permanent,” the license never expires.</p>
<i>num_lic</i>	Number of concurrent licenses for this product license. Do not edit this line.
SIGN=sign	SIGN= signature to authenticate this INCREMENT line. Do not edit this line.

INCREMENT lines also determine the grouping of licenses in the License Management Console. These groups are known as *license pools*. The Citrix vendor daemon creates the license pools based on common attributes, such as product license or version. When a new pool is created, the License Management Console displays and tracks this pool independently from other license pools. When two or more attributes are different, the Citrix vendor daemon creates a new license pool.

Citrix Attributes in INCREMENT Lines

INCREMENT lines can also include additional attributes from Citrix. These attributes provide information about the license, such as the date on which it was issued or that the license is an upgrade license.

Caution: Do not modify or delete these attributes.

Example

```
INCREMENT MPS_ENT_CCU CITRIX 2008.0606 permanent 10 \
VENDOR_STRING=;LT=Retail;GP=720;CL=ENT,ADV,STD,AST;SA=1;ODP=0 \ DUP_GROUP=V
ISSUED=06-Jun-2007 NOTICE="Citrix" \ SN=12345:67890 START=6-jun-2007 SIGN="18F8 1546
F605 E3BD 010E 7E4F A4B3 9DE3 B90E 7937 3337 0180 1FFB C6EB D491"
```

Important items are highlighted in the above example:

- The Product (license feature) appears in blue
- The Citrix Subscription Advantage expiration date appears in red (Format: YYYY.MMDD)
- The License (user, connection) Count appears in GREEN

Syntax

keyword=value

The following table describes the Citrix attributes. The uppercase letters of the attributes indicate that this attribute is not editable.

Attribute	Description
DUP_GROUP=V	This attribute allows license sharing for the same client device.
ISSUED=dd-mmm-yyyy	Date issued.
ISSUER="..."	Issuer of the license.
NOTICE="..."	Your company's name.
SN=serial_num	A number that is used to identify INCREMENT lines.
START= dd-mmm-yyyy	The date from which you can use a license. The license server cannot use licenses before their start date.
SUPERSEDE="MPS_ADV_CCU MPS_STD_CCU ..."	This appears in the upgrade license file when you move to a higher product edition. If this appears, all licenses issued before the date specified in ISSUED= are superseded by this line and become ineffective.
VENDOR_STRING="..."	String defined by Citrix.

Optional Attributes in INCREMENT Lines

INCREMENT lines contain several attributes that you can add, edit, or delete. You can add attributes, if desired. For example, you can insert an asset tag or a purchase order number beside each license in a file. Likewise, you can add attributes that indicate a

specific group of licenses is dedicated for a department in your organization.

Some of these attributes may be inserted by Citrix or your Value Added Reseller.

Optional attributes are listed in the table that follows. Like the Citrix-specific attributes, the optional attributes have a keyword=value syntax where keyword is in lowercase. You can tell the difference between optional and required attributes by the case of the letters: optional attributes have lowercase letters.

Attribute	Description
asset_info= "..."	Additional information you can add for asset management
dist_info= "..."	Additional information provided by the software distributor
user_info= "..."	Additional information provided by the license administrator
vendor_info= "..."	Additional information provided by Citrix

UPGRADE Lines

An UPGRADE line indicates the date when a Subscription Advantage membership was renewed and the date it expires.

Caution: Do not modify this line.

Syntax

```
UPGRADE feature CITRIX from_Subscription_Advantage_date
to_Subscription_Advantage_renewal_date
exp_date num_lic \
[options ... ] SIGN=sign
```

All the data is the same as for an INCREMENT line, with the addition of the *from_Subscription_Advantage_date* field. An UPGRADE line removes up to the number of licenses specified from any old version (\geq *from_Subscription_Advantage_date*) and creates a new version with that same number of licenses.

Example 1

For example, the following lines renew the ABCD Corporation's Subscription Advantage membership for 1000 MPS_ENT_CCU licenses for one year (until March 11, 2006):

```
INCREMENT MPS_ENT_CCU CITRIX 2005.0311 permanent 1000 \
VENDOR_STRING=;LT=Retail;GP=96;CL=ENT,ADV,STD;SA=1;ODP=0 \
DUP_GROUP=V ISSUED=12-Mar-2004 NOTICE="ABCD Corporation" \
SN=LA-0000150712-12345:123 START=11-mar-2004 SIGN="1234567"
```

```
UPGRADE MPS_ENT_CCU CITRIX 2005.0311 2006.0311 permanent 1000 \  
VENDOR_STRING=;LT=Retail;GP=96;CL=ENT,ADV,STD;SA=1;ODP=0 \  
DUP_GROUP=V ISSUED=12-Mar-2005 NOTICE="ABCD Corporation" \  
SN=RE-0000164638-12345:123 START=11-mar-2005 SIGN="1234567"
```

Example 2

For example, the following lines renew the ABCD Corporation's Subscription Advantage membership for 1000 MPS_ENT_CCU licenses for one year (until March 11, 2006):

```
INCREMENT MPS_ENT_CCU CITRIX 2005.0311 permanent 1000 \  
VENDOR_STRING=;LT=Retail;GP=96;CL=ENT,ADV,STD;SA=1;ODP=0 \  
DUP_GROUP=V ISSUED=12-Mar-2004 NOTICE="ABCD Corporation" \  
SN=LA-0000150712-12345:123 START=11-mar-2004 SIGN="1234567"
```

```
UPGRADE MPS_ENT_CCU CITRIX 2005.0311 2006.0311 permanent 1000 \  
VENDOR_STRING=;LT=Retail;GP=96;CL=ENT,ADV,STD;SA=1;ODP=0 \  
DUP_GROUP=V ISSUED=12-Mar-2005 NOTICE="ABCD Corporation" \  
SN=RE-0000164638-12345:123 START=11-mar-2005 SIGN="1234567"
```

An UPGRADE line applies to the closest preceding INCREMENT line with a Subscription Advantage date that is greater than or equal to `from_Subscription_Advantage_date`, and less than `to_Subscription_Advantage_renewal_date`.

Upgrade lines use a continuation character (\) to break up long lines. When using license files with an UPGRADE line, you must keep the license files with the original INCREMENT lines in the same folder.

See [Subscription Advantage and Licensing](#) for additional information about obtaining Subscription Advantage files.

Reallocating License Files

License files run only on the license server that was specified when they were generated and downloaded from citrix.com. This is because license files contain the hostname or other binding identifier of the license server. You cannot use the license file that was generated, which specifies a particular license server name or binding identifier, with a license server that has a different name or binding identifier.

Note: About MAC addresses: While most Citrix products use the server hostname for the license files for the binding identifier, some Citrix products use the MAC address of the appliance. In this case, renaming the license server does not affect the license file and you do not have to reallocate your licenses. However, if you move the licenses to another appliance (the MAC address changes), you must reallocate the licenses.

The Access Gateway appliance is licensed differently. For the Standard and Enterprise editions, the license file resides on the appliance; therefore, the license name is tied to the name of the appliance. For the Advanced edition, the license file resides on a Windows license server and therefore uses the server name (hostname) for the license files. For all three editions, if you rename the appliance (Standard and Enterprise) or the license server (Advanced Edition), you must reallocate the license files.

If you need to rename your license server or move your license files to a server with a different name, you cannot use the license files that you downloaded for the old license server. Create new license files that reference the new server name by reallocating and generating the new file.

You might need to create a license file that references a new hostname for reasons such as the following:

- You want to rename your license server
- You want to move your license files to a server with a different name
- You entered the incorrect license server name when you allocated and generated the license file
- You upgraded license servers and the hostname of the server changed
- You used some licenses initially to create a test environment and now you want to reuse those licenses on a different license server

To create a license file that references a new hostname, regenerate those licenses in a new license file that includes the new hostname or allocation count. Designating a new hostname changes the license server to which your licenses were allocated; this action does not consume additional licenses that you did not allocate.

License files are stored in:

- C:\Program Files\Citrix\Licensing\MyFiles on a 32-bit server
- C:\Program Files(x86)\Citrix\Licensing\MyFiles on a 64-bit server

Note: Before you place the license file on the license server, make any changes to the license files—such as changes to port numbers—that were in your previous license files before you restart the Citrix Licensing and Citrix Management Console services. Citrix recommends that you upgrade the license server to the latest version. Version 11.5 or later contains a new port service that automatically updates the port numbers in all license files with the port numbers. New license servers are backward compatible and will work with older products and license files. You can find that latest license server on the Citrix Web site in the Downloads area.

If you are running a pre-11.5 version, you must manually update all the files before you copy them to the MyFiles directory.

If you installed the License Management Console, you can access My Citrix from within the License Management Console. This component takes you to My Citrix and after you reallocate your licenses and generate a new file, you can use the interface to copy the file to the MyFiles directory where the license server can read the file.

Otherwise, if you did not install the License Management Console, you must open a browser and navigate to citrix.com, reallocate your licenses and generate the new file, manually download the file, copy it to the MyFiles directory on the license server, and run a command so that the license server recognizes the file. Both procedures are detailed in this section.

Reallocating License Files

License files run only on the license server or hardware appliance that was specified when they were generated. If you change the binding identifier of a server or appliance hosting license files, you must reallocate license files so that they match the new binding identifier.

The *binding identifier* is the information in the license file that identifies the machine where the license file is hosted. The binding identifier is usually the license server hostname, but it can also be a hardware appliance name, Ethernet address (MAC address), or FQDN.

Situations in which you might need to reallocate a license file:

- You rename your license server
- You want to move your license files to a server with a different name
- You used some licenses initially to create a test environment and now you want to reuse those licenses on a different license server

Designating a new binding identifier when you reallocate licenses does not consume additional licenses. The process changes only the binding identifier for the licenses.

To reallocate license files with the License Administration Console

1. Start the console (**Start > All Programs > Citrix > Management Consoles > License Administration Console**).
2. Click **Administration and Vendor Daemon Configuration**.
3. Click **Import License**.
4. Click the **My Citrix** link.
5. On the My Citrix page, enter your user ID and password.
6. Select **Manage Licenses** from **Choose a Toolbox**.
7. From the Manage Licenses main menu, select **Reallocate**.
8. Select the check boxes preceding the license codes you want to reallocate, click **Continue**.
9. On the pages that follow, follow the instructions to select the licenses to be re-allocated into the new file (and associated with a new license server) and download the license file.
10. Save the files to a location such as your desktop (remember the name of the files and location where you downloaded the file; you will need this location). You can save the file directly to the default location. The default location where license files are kept is:
 - C:\Program Files\Citrix\Licensing\MyFiles on a 32-bit server
 - C:\Program Files(x86)\Citrix\Licensing\MyFiles on a 64-bit server
11. In the License Administration Console on the Import License File page, browse to the license file.
12. If you copied the file directly to the MyFiles directory, or if the file has the same name as an existing one, select **Overwrite License File on License Server**.
13. Click **Import License**.
14. Click **Vendor Daemon Configuration** and click **Administer** in the Citrix vendor daemon line.
15. Click **Reread License Files** to allow the license server to recognize the new file.

To reallocate license files without the console

1. From a Web browser, go to <http://www.citrix.com>.
2. Click **Log In** and enter your user ID and password.
3. From the drop-down list, select **License Management**.
4. From the Manage Licenses main menu, select **Reallocate**.
5. Select the check box preceding the license code you want to return, then click **Continue**.
6. On the pages that follow, follow the instructions to select the licenses to be re-allocated into the new file (and associated with a new license server) and download the license file.
7. Save the file to a location such as your desktop (remember the name of the file and location where you downloaded the file; you will need this location). You can save the file directly to the default location. The default location where license files are kept is:
 - C:\Program Files\Citrix\Licensing\MyFiles on a 32-bit server
 - C:\Program Files(x86)\Citrix\Licensing\MyFiles on a 64-bit server
8. At a command prompt, navigate to:
 - C:\Program Files\Citrix\Licensing\LS on a 32-bit computer
 - C:\Program Files (x86)\Citrix\Licensing\LS on a 64-bit computerand type the following command: `lmreread -c @localhost`.

To reallocate license files without using the License Management Console

1. From a Web browser, go to <http://www.citrix.com>.
2. Click **Log In** and enter your user ID and password.
3. From the drop-down list, select **License Management**.
4. From the Manage Licenses main menu, select **Reallocate**.
5. Select the check box preceding the license code you want to return, then click **Continue**.
6. On the pages that follow, follow the instructions to select the licenses to be re-allocated into the new file (and associated with a new license server) and download the license file.
7. Save the file to a location such as your desktop (remember the name of the file and location where you downloaded the file; you will need this location). You can save the file directly to the default location. The default location where license files are kept is:
 - C:\Program Files\Citrix\Licensing\MyFiles on a 32-bit server
 - C:\Program Files(x86)\Citrix\Licensing\MyFiles on a 64-bit server
8. Close the browser.
9. If you have changed any port numbers in the license files, you must modify all the port numbers in any new license files.
 - If you have the Citrix License Server, version 11.5 or later, you do not need to edit the files or perform any action. The license server has a service that automatically updates all the files. Continue to the next step in this procedure.
 - If you are running a pre-11.5 version of the license server and you have customized your port numbers, you must manually update all the files before you continue this procedure.
 - To find out which version of the license server you have, see [Finding the License Server Version Number](#).
 - To find out how to manually change port numbers, see [Modifying Port Numbers for Firewalls](#).
10. Copy the license file(s) from the directory where it was saved to the license server MyFiles directory.
 - C:\Program Files\Citrix\Licensing\MyFiles on a 32-bit server
 - C:\Program Files(x86)\Citrix\Licensing\MyFiles on a 64-bit server
11. At a command prompt, navigate to:

To reallocate license files without using the License Management Console

- C:\Program Files\Citrix\Licensing\LS on a 32-bit server.
- C:\Program Files(x86)\Citrix\Licensing\LS on a 64-bit server.

and type the following command: `lmreread -c @localhost`. This command ensures that the license server recognizes the new file.

Downloading Replacement License Files

Replacement license files are copies of the license file you originally generated in My Citrix. These license files reference the license server name or other binding identifier that you specified when you allocated the licenses. You may want to download replacement files if you corrupt or delete a license file.

After you download replacement license files, delete the old (corrupted or outdated) license files from the license server and replace them with the newly downloaded files.

License files are stored in:

- C:\Program Files\Citrix\Licensing\MyFiles on a 32-bit server
- C:\Program Files(x86)\Citrix\Licensing\MyFiles on a 64-bit server

Note: Before you place the license file on the license server, make any changes to the license files—such as changes to port numbers—that were in your previous license files before you restart the Citrix Licensing and Citrix Management Console services. Citrix recommends that you upgrade the license server to the latest version. Version 11.5 or later contains a new port service that automatically updates the port numbers in all license files with the port numbers. New license servers are backward compatible and will work with older products and license files. You can find that latest license server on the Citrix Web site in the Downloads area.

If you are running a pre-11.5 version, you must manually update all the files before you copy them to the MyFiles directory.

If you installed the License Management Console, you can access My Citrix from within the License Management Console. This component takes you to My Citrix and after you select your licenses and generate a file, you can use the interface to copy the file to the MyFiles directory where the license server can read the file.

Otherwise, if you did not install the License Management Console, you must open a browser and navigate to My Citrix, combine your licenses and generate the file, manually download the file, copy it to the MyFiles directory on the license server, and run a command so that the license server recognizes the file.

To download replacement license files using the License Management Console

1. At the computer where the License Management Console is installed, log on using the credentials that were configured in the License Management Console. This includes the administrator credentials used to install the component or any other credentials configured within the License Management Console after its installation.
2. On the Welcome page, click **Configure License Server**. The License Files page appears.
3. Click **Download license file from MyCitrix.com**.
4. On the My Citrix page, enter your user ID and password.
5. Select **Manage Licenses** from **Choose a Toolbox**.
6. From the Manage Licenses main menu, select **Redownload**.
7. Click **Select All** to select all items on all pages, click the Page check box to select all items on that page, or select the check boxes preceding the licenses that you want to download.
8. Click **Download** and save the files to a location such as your desktop (remember the name of the file and location where you downloaded the file; you will need this location). You can save the file directly to the default location. The default location where license files are kept is:
 - C:\Program Files\Citrix\Licensing\MyFiles on a 32-bit server
 - C:\Program Files(x86)\Citrix\Licensing\MyFiles on a 64-bit server
9. Return to the License Management Console.
10. If you have changed any port numbers in the license files, you must modify all the port numbers in any new license files.
 - If you have the Citrix License Server, version 11.5 or later, you do not need to edit the files or perform any action. The license server has a service that automatically updates all the files. Continue to the next step in this procedure.
 - If you are running a pre-11.5 version of the license server and you have customized your port numbers, you must manually update all the files before you continue this procedure.
 - To find out which version of the license server you have, see [Finding the License Server Version Number](#).
 - To find out how to manually change port numbers, see [Modifying Port Numbers for Firewalls](#).
11. Depending on which screen you are in, perform the following actions:

To download replacement license files using the License Management Console

- If you are at the License Files page, click **Step 2: Copy license file to this license server** and then proceed to the next step.
 - If you are on the Upload license file page, proceed to the next step.
12. On the Upload license file page, if the directory information does not already appear in the **License File** field, browse to the location where you saved the license file, select the file, then click **Upload**.
 13. On the License Files page, under the title, click **Update license data**. The file appears in the table on the page.

To download replacement license files without using the License Management Console

1. From a Web browser, go to <http://www.citrix.com>.
2. Click **Log In** and enter your user ID and password.
3. From the drop-down list, select **License Management**.
4. From the Manage Licenses main menu, select **Redownload**.
5. Click **Select All** to select all items on all pages, click the Page check box to select all items on that page, or select the check boxes preceding the licenses that you want to download.
6. Click **Download** and save the file to a location such as your desktop (remember the name of the file and location where you downloaded the file; you will need this location). You can save the file directly to the default location. The default location where license files are kept is:
 - C:\Program Files\Citrix\Licensing\MyFiles on a 32-bit server
 - C:\Program Files(x86)\Citrix\Licensing\MyFiles on a 64-bit server
7. Close the browser.
8. If you have changed any port numbers in the license files, you must modify all the port numbers in any new license files.
 - If you have the Citrix License Server, version 11.5 or later, you do not need to edit the files or perform any action. The license server has a service that automatically updates all the files. Continue to the next step in this procedure.
 - If you are running a pre-11.5 version of the license server and you have customized your port numbers, you must manually update all the files before you continue this procedure.
 - To find out which version of the license server you have, see Finding the License Server Version Number.
 - To find out how to manually change port numbers, see [Modifying Port Numbers for Firewalls](#).
9. Copy the license file(s) from the directory where it was saved to the license server MyFiles directory.
 - C:\Program Files\Citrix\Licensing\MyFiles on a 32-bit server
 - C:\Program Files(x86)\Citrix\Licensing\MyFiles on a 64-bit server

10. At a command prompt, navigate to:

- C:\Program Files\Citrix\Licensing\LS on a 32-bit server.
- C:\Program Files(x86)\Citrix\Licensing\LS on a 64-bit server.

and type the following command: `lmreread -c @localhost`. This command ensures that the license server recognizes the new file.

Combining License Files

If you find that you are accumulating a lot of license files on a license server, you can combine the licenses into one license file. License files can accumulate when:

- You have purchased additional licenses
- You have renewed your Subscription Advantage membership

After you download the new license file, delete the old license files from the license server before replacing them with the newly downloaded file.

Important: Never delete the `citrix.opt` and `citrix_startup.lic` files.

If you installed the License Management Console, you can access My Citrix from within the License Management Console. This component takes you to My Citrix and after you combine your licenses and generate a file, you can use the interface to copy the file to the MyFiles directory where the license server can read the file.

Otherwise, if you did not install the License Management Console, you must open a browser and navigate to `citrix.com`, combine your licenses and generate the file, manually download the file, copy it to the MyFiles directory on the license server, and run a command so that the license server recognizes the file.

Note: Before you place the license file on the license server, make any changes to the license files—such as changes to port numbers—that were in your previous license files before you start the Citrix Licensing service. Citrix recommends that you upgrade the license server to the latest version of the license server. Version 11.5 or later contains a new port service that automatically updates the port numbers in all license files. The new license server is backward compatible and will work with older products and license files. You can find that latest license server on the Citrix Website in the Downloads area.

If you are running a pre-11.5 version of the license server and you have customized your port numbers, you must manually update all the files.

To combine files using the License Management Console

1. At the computer where the License Management Console is installed, log on using the credentials that were configured in the License Management Console. This includes the administrator credentials used to install the component or any other credentials configured within the License Management Console after its installation.
2. On the Welcome page, click **Configure License Server**. The License Files page appears.
3. Click **Download license file from MyCitrix.com**.
4. On the My Citrix page, enter your user ID and password.
5. Select **Manage Licenses** from **Choose a Toolbox**.
6. From the Manage Licenses main menu, select **Redownload**.
7. Use the **By Host** tab (to automatically combine all specified licenses allocated to a host ID into single line item) and click **Select All** to select all items on all pages, click the Page check box to select all items on that page, or select the check boxes preceding the licenses that you want to download.
8. Click **Download** and save the file to a location such as your desktop (remember the name of the file and location where you downloaded the file; you will need this location). You can save the file directly to the default location. The default location where license files are kept is:
 - C:\Program Files\Citrix\Licensing\MyFiles on a 32-bit server
 - C:\Program Files(x86)\Citrix\Licensing\MyFiles on a 64-bit server
9. Return to the License Management Console.
10. If you have changed any port numbers in the license files, you must modify all the port numbers in any new license files.
 - If you have the Citrix License Server, version 11.5 or later, you do not need to edit the files or perform any action. The license server has a service that automatically updates all the files. Continue to the next step in this procedure.
 - If you are running a pre-11.5 version of the license server and you have customized your port numbers, you must manually update all the files before you continue this procedure.
 - To find out which version of the license server you have, see Finding the License Server Version Number.
 - To find out how to manually change port numbers, see [Modifying Port Numbers for Firewalls](#).
11. Depending on which screen you are in, perform the following actions:

- If you are at the License Files page, click **Step 2: Copy license file to this license server** and then proceed to the next step.
 - If you are on the Upload license file page, proceed to the next step.
12. On the Upload license file page, if the directory information does not already appear in the **License File** field, browse to the location where you saved the license file, select the file, then click **Upload**.
 13. On the License Files page, under the title, click **Update license data**. The file appears in the table on the page.

To combine files without using the Licensing Management Console

1. From a Web browser, go to <http://www.citrix.com>.
2. Click **Log In** and enter your user ID and password.
3. From the drop-down list, select **License Management**.
4. From the Manage Licenses main menu, select **Redownload**.
5. Use the **By Host** tab (to automatically combine all specified licenses allocated to a host ID into single line item) and click **Select All** to select all items on all pages, click the Page check box to select all items on that page, or select the check boxes preceding the licenses that you want to download.
6. Click **Download** and save the files to a location such as your desktop (remember the name of the file and location where you downloaded the file; you will need this location). You can save the file directly to the default location. The default location where license files are kept is:
 - C:\Program Files\Citrix\Licensing\MyFiles on a 32-bit server
 - C:\Program Files(x86)\Citrix\Licensing\MyFiles on a 64-bit server
7. Close the browser.
8. If you have changed any port numbers in the license files, you must modify all the port numbers in any new license files.
 - If you have the Citrix License Server, version 11.5 or later, you do not need to edit the files or perform any action. The license server has a service that automatically updates all the files. Continue to the next step in this procedure.
 - If you are running a pre-11.5 version of the license server and you have customized your port numbers, you must manually update all the files before you continue this procedure.
 - To find out which version of the license server you have, see Finding the License Server Version Number.
 - To find out how to manually change port numbers, see [Modifying Port Numbers for Firewalls](#).
9. Copy the license file(s) from the directory where it was saved to the license server MyFiles directory.
 - C:\Program Files\Citrix\Licensing\MyFiles on a 32-bit server
 - C:\Program Files(x86)\Citrix\Licensing\MyFiles on a 64-bit server
10. At a command prompt, navigate to:

To combine files without using the Licensing Management Console

- C:\Program Files\Citrix\Licensing\LS on a 32-bit server.
- C:\Program Files(x86)\Citrix\Licensing\LS on a 64-bit server.

and type the following command: `lmreread -c @localhost`. This command ensures that the license server recognizes the new file.

Deleting License Files

When you upgrade your edition (for example, Advanced to Enterprise, or Enterprise to Platinum) you receive new Citrix product licenses that you can allocate to one or many Citrix License Servers through license files created at citrix.com. There is no requirement that obsolete Citrix licenses be removed from license servers; however, Citrix recommends as a best practice that you remove them for the following reasons:

- License asset management
- License compliance
- Remove unnecessary alerts from appearing in the License Management Console

If you do not proactively remove obsolete and/or unnecessary license allocations, you may see persistent alerts regarding the Subscription Advantage expiration dates of these licenses. You cannot turn these alerts off.

Note: The only impact of leaving obsolete license allocations on license servers is that you will continue to receive these alerts.

Citrix license files reside on your Citrix License Server(s) and contain a .lic extension. License files do not require a specific file name (name.lic). However, the .lic extension must not change for active license files.

You can manually delete license files that are expired or have been combined into other license files.

License files are stored in:

- C:\Program Files\Citrix\Licensing\MyFiles on a 32-bit server
- C:\Program Files(x86)\Citrix\Licensing\MyFiles on a 64-bit server

Before you delete license files, stop the Citrix License Management Console and Citrix Licensing services. If you do not stop the service, an error message appears informing you that the file is in use.

After you delete or add license files, restart the Citrix License Management Console Service.

Note: If you are running a pre-11.5 version of the license server and you have customized your port numbers, you must manually update all the new files before you replace them.

- To find out which version of the license server you have, see [Finding the License Server Version Number](#)
- To find out how to manually change port numbers, see [Modifying Port Numbers for Firewalls](#)

When replacing deleted files:

- Incorrect modification of license files can invalidate your licenses. Incorrect removal of license files could inadvertently lower the total licenses available.
- Place any new license files on the license server(s) prior to any modification or removal of obsolete licenses.
- Unless you are deleting license files permanently, always keep back-up copies of the files you are deleting.
- Remove a license file only when all INCREMENT lines in the file are obsolete or unnecessary. For example, every increment line has been replaced with a new license as a result of an upgrade.

1. At the Citrix License Server, open Windows Explorer.
2. Navigate to the location where the license files are stored.

License files are stored in:

- C:\Program Files\Citrix\Licensing\MyFiles on a 32-bit server
 - C:\Program Files(x86)\Citrix\Licensing\MyFiles on a 64-bit server
3. Back up all license (.lic) files.
 4. Using a text editor (Microsoft WordPad is recommended), open each of the license (.lic) files and identify the obsolete license feature INCREMENT line(s).
 5. Ensure all increment lines are obsolete or unnecessary. See [License File Format](#) for information about increment lines.
 6. Change the file extension from .lic to .old and save.
 7. Once complete, launch the License Management Console. See [Launching the License Management Console](#) for the procedure.
 8. Choose **Configure License Server**, and then click **Update License Data**. Alternatively, you can restart the Citrix Licensing service from the Windows Services control panel.

Tip: You can verify that the licenses have been removed by viewing the **Current Usage** or **Complete License Inventory** pages in the License Management Console.

Subscription Advantage and Licensing

When you purchase a new Citrix product, your purchase includes a one-year membership in Citrix Subscription Advantage. This membership entitles you to, among other benefits, any product updates, including major and minor releases, released during your membership period. For example, if you purchased XenApp, Advanced edition on July 22, 2009, you are entitled to any updates released for XenApp, Advanced edition until July 21, 2010. After your initial one-year membership period expires, you may choose to renew your Subscription Advantage membership. After paying Citrix for your renewal, you must go to citrix.com and download a license file containing your renewal license.

Note: A Subscription Advantage membership and its associated license are distinct from your license to run the product. If you do not renew your Subscription Advantage membership, your Citrix products do not stop working; however, you are not entitled to any software releases after it expires.

Adding Subscription Advantage Renewal Files

Subscription Advantage renewal license files contain licenses, known as *renewal licenses*, that extend your Subscription Advantage membership for a one-year period. These licenses are required to run any new product releases, excluding hotfixes, that are released during your membership period.

After you download your Subscription Advantage renewal license file from citrix.com, you must add it to your license server. Copy the Subscription Advantage renewal license files to the same directory as your existing license files and reread the license files. By default, this location is `C:\Program Files\Citrix\Licensing\MyFiles` on a 32-bit server or `C:\Program Files (x86)\Citrix\Licensing\MyFiles` on a 64-bit server. After you add the renewal license to your license server, the license automatically unlocks any subsequent versions of the product released during the Subscription Advantage period.

If you do not add the Subscription Advantage renewal licenses immediately, your Citrix products do not stop working. However, you cannot run any new software released during your renewed membership until you have the renewal license on your license server.

You do not need to download additional licenses when you install new versions of your products during this membership period. If Citrix releases a product version after your Subscription Advantage membership ends, you must renew your Subscription Advantage membership and obtain a renewal license before you can use the new product version.

Note:

- When you download additional license files, you may delete the expired Subscription Advantage licenses; however, it is not a requirement. You may wish to keep them to make it easier to identify the upgrade that is associated with each base license.
- If you have a Subscription Advantage membership for any products on a license server that is configured for use with a firewall, you will be acquiring new license files according to the terms of membership schedule. When you place new license files on your license server, you need to modify these files with the same port number in use

for the existing license files. For information about changing port numbers in files, see [Modifying Port Numbers for Firewalls](#).

You can find out what your Subscription Advantage dates are:

- In the License Management Console. See [Viewing License Availability](#) in the online library.

Tip: You can set an alert in the License Management Console to display a warning X number of days before the membership expires.

- Using a text editor to view the license file: See the Upgrade Lines section in [License File Format](#) for information about reading the contents of the license file.

Renewing Only Part of Your Subscription Advantage Membership

If you run products from two different releases in your environment (for example, you have a mixed XenApp (formerly known as Presentation Server) environment of versions 4.0 and 5.0), and you are not purchasing Subscription Advantage for all your licenses, Citrix recommends that you separate the product licenses on two separate license servers. Subscription Advantage is applied to the older product versions first.

For example, if you own 200 licenses for 4.0 and you renew your Subscription Advantage membership for only 100 of those licenses, it is possible that those 100 renewal licenses, which are required for 5.0, could be consumed by connections to computers running 4.0. For additional information about how Subscription Advantage is applied to different versions, see the article [CTX107980](#) in the Citrix Knowledge Center.

To Separate your Licenses (Two Different Licenses on Two Different Servers)

1. Select a second server and install the license server software.
2. Go to [citrix.com](#) to reallocate your original licenses (these are the licenses contained in your current license file on the original license server) and then reallocate the licenses into two new files:
 - Allocate 4.0 licenses to create a license file for your first server
 - Allocate 5.0 licenses to create another license file for the second serverSee [Reallocating License Files](#) for information about returning and reallocating license files.
3. Generate and download your Subscription Advantage files and then copy them to the server to which you want them applied.
4. Point all computers to the license server running the version of the Citrix product you want them to use. For information about pointing your Citrix product server to the license server, see your Citrix product's administrator guide.

Backing up the License Server

Depending on how crucial the applications associated with your licenses are, you may want to create backup license servers. Although Citrix stores backup copies of your licenses, downloading many replacement licenses can be time-consuming. You can either store backup licenses on a network file share or have a configured backup license server ready in case of license server failure.

Important: If the license server fails or there is a power failure, products using that license server continue working for the entire grace period. Whenever a Citrix product is unable to contact the license server, it enters into a grace period.

Grace Periods

If the product cannot contact the license server due to a power outage or network problem, it continues to operate for the grace period as though all licenses are available. If the product cannot contact the license server by the end of this period, the product stops accepting client connections until communication with the license server resumes. See your product's administrator guide for specific details on its grace period.

Note: Existing connections are never disconnected when the product enters the licensing grace period. When the grace period expires, only new connections are denied.

Some notes about licensing grace periods across Citrix products:

- When a Citrix product goes into a licensing grace period, an event is written to the Windows Event Log on the computer running the product.
- When a product enters the licensing grace period, Citrix XenApp Management Pack for Microsoft Operations Manager 2005 raises an alert. (Writing the grace period event to the Windows Event Log triggers this alert.) For additional information about alerts, see *Introducing the Citrix XenApp Management Pack for Microsoft Operations Manager 2005*.
- When Password Manager enters the licensing grace period, it does not write any errors to the Windows Event log. Instead, warning messages start appearing on the user's desktop. You can tell if a user entered the licensing grace period by checking the information contained in the user's notification area icon.

Redundancy Solutions

Setting up redundancy solutions may be necessary only in mission-critical environments. For smaller or less mission-critical deployments, you can back up your license server by creating a duplicate license server that can be stored on or off the network. For larger, more mission-critical deployments, you might want to create a clustered license server.

You can ensure redundancy for your license server by:

- Duplicating the license server and its contents. Give the duplicate computer the same name as the active license server and store it off the network.
- Storing an additional license server on the network with a different server name. In this case, when the active license server fails, you need to change the backup server name to start using it as the active license server.
- Creating a clustered license server. For more information about clustering and licensing, see [Setting up the License Server on a Microsoft Cluster](#).

All methods let you exchange one server license for another without a loss of service, provided the exchange occurs within the grace period. There are key points to remember:

- Because license files reference the server specified during allocation, you can use the files only on a server with the same name as the original license server
- You cannot have two license servers with the same name on your network active at the same time
- You must add any additional licenses that you download to both the active license server and the backup license server

Setting up the License Server on a Microsoft Cluster

Cluster servers are groups of computers that are combined to increase availability, reliability, and scalability. Microsoft clustering functionality exists in Windows 2000 Server, Windows Server 2003, and Windows Server 2008. Clustering the license server lets users continue working during failure situations without interrupting their access to critical applications. When the active node in a cluster-enabled license server suffers from hardware failure, failover occurs automatically. Resources are available again in a few seconds to a few minutes.

A typical cluster configuration has, at a minimum, one active and one passive (backup) server. When the active server in a cluster fails, the ownership of the resources in the cluster are transferred to the backup (passive) server. Typically, users cannot detect when one server in a cluster fails over to another.

When the active node of a clustered license server fails, there is no impact on users connected to the Citrix product. The product may briefly enter the licensing grace period and an event may be written in the product's event log.

Important: Citrix Licensing supports clustering the license server with two servers in a cluster and a shared drive. That is, you can cluster the license server in a two-node Microsoft Cluster in an Active/Passive Microsoft clustering configuration.

Citrix Licensing in a Clustered Enabled Deployment

Like most clusters, a private network is used to send heartbeats, commands, and state information between the nodes of the cluster. If the connection is interrupted, the nodes try to reconnect by the private network first, then the public network. The following diagram illustrates a cluster-enabled licensing deployment:

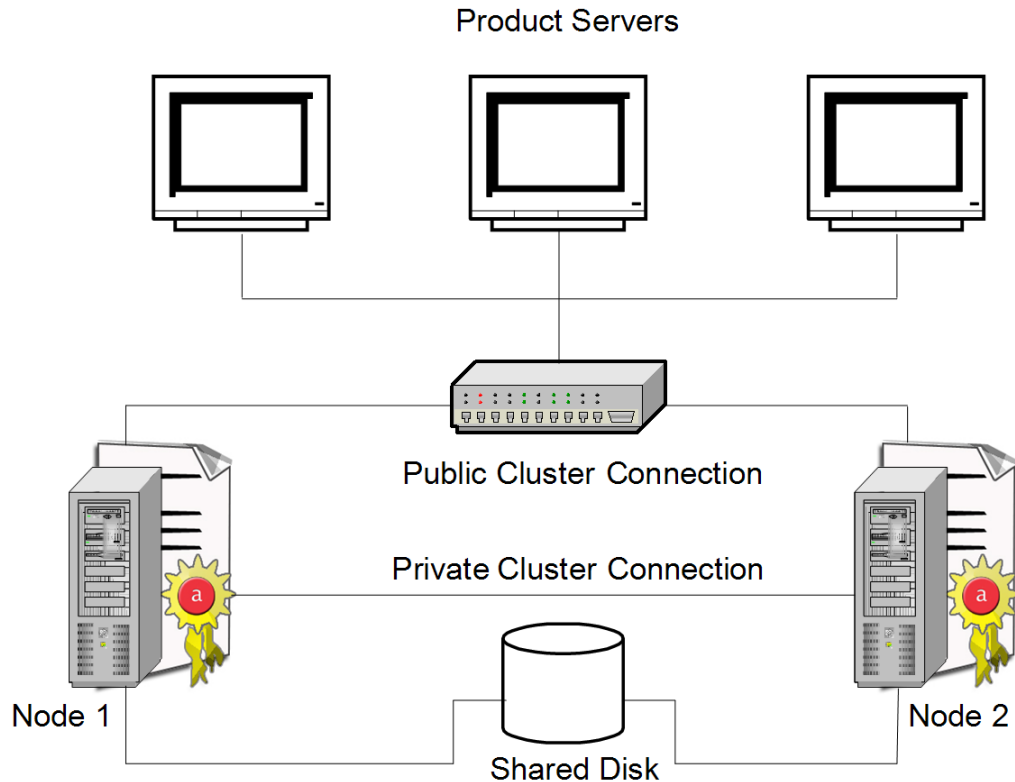


Figure 1. Communications in a clustered licensing environment

Only one node can utilize the resources in a cluster at any given time. If you already deployed Citrix Licensing and you want to migrate your deployment to a cluster-enabled server, keep the following points in mind:

- Because you already generated license files that reference a specific server name, you must either give the cluster the same name as the original license server or rehost your license files with the new name of the license server cluster.
- Cluster names are always ALL UPPERCASE. Host names in license files are case-sensitive; therefore, the cluster names must be all uppercase in the license file. If they are not, you must rehost your license files with the correct capitalization of the names.
- You must point all product installations (for example, servers running Citrix XenApp) serviced by the old license server to the new license server cluster. Change product communication settings so that they use the name of the cluster as the license server name. For information about editing product-side communication settings, see the product's documentation.

Requirements for Clustered License Servers

The following list outlines the requirements for setting up a license server in a Microsoft Cluster:

- Before configuring Citrix Licensing for Microsoft clustering, you must have a fully-functional active/passive cluster environment. Citrix Licensing does not support active/active clusters.
- To cluster the license server, you must follow the following cluster requirements in addition to any requirements from Microsoft for hardware and clustering in general.
- You must install licensing on the cluster by starting the licensing setup program using a command line.
- When you install Citrix Licensing on a cluster, you must specify the name of the cluster when prompted for the name of the license server during product installation.
- Citrix recommends that you use identical license server hardware for both nodes in the cluster. In particular, Citrix recommends two network adapters on each node and the servers have one drive configured as a shared drive.
- Each node should have two network adapters—one for connection to the public network and the other for the node-to-node private cluster network. Citrix does not support using one network adapter for both connections.
- The public and the private IP address must be on different subnets because the Cluster Service will recognize only one network interface per subnet.
- A name resolution method, such as DNS, WINS, HOSTS, or LMHOSTS, is necessary to resolve the cluster name.
- Both servers that form the cluster must be in the same domain.
- The hostname of both servers must be ALL UPPERCASE.
- Set static IP addresses for the private network connector.
- When you generate a license file at citrix.com, use the name of the license server cluster when prompted for the host name.
- After you download a license file, you must copy it to the *F:*\Program Files\Citrix\Licensing\MyFiles folder (where *F:* is the shared drive for the cluster) on the license server and reread it. Alternatively, use the License Management Console to download, copy, and reread the file.

Important: Citrix recommends setting static IP addresses for all network adapters in the cluster, both private and public. If IP addresses are obtained by Dynamic Host Configuration Protocol (DHCP), access to cluster nodes could become unavailable if the

DHCP server goes down. If you must use DHCP for your public network adapter, use long lease periods to assure that the dynamically assigned lease address remains valid even if the DHCP service is temporarily lost or perform a DHCP reservation.

Overview of Procedure

The following steps describe the overall process involved in installing and configuring licensing on a cluster-enabled server. These steps assume you configured the clustering on the hardware on which you intend to install the license server. A detailed procedure follows.

1. Ensure that the first node has control of the cluster resources.
2. On the first node of the cluster, start the Citrix Licensing installation from the command-line and install it on the first node to the shared cluster drive (not the quorum drive).
3. Move the resources from the active node in the cluster to the second node.
4. Install the license server on the second node to the same shared location as the first node.
5. Obtain license files that specify the cluster name of the license server as the host name. After obtaining license files, you must add them to the license server and then reread them.
6. Configure your Citrix product to use the cluster name—not the node name—of the license server cluster.

Note: When a clustered license server fails over, the cluster service renames the `lmgrd_debug.log` to the name of the node that previously hosted the services. Then it starts the services on the new active node and creates a new `lmgrd_debug.log`.

Installing Licensing on A Clustered-Enabled Server

The following drive letters and paths/variables are used in this procedure:

- D is the drive for your product media (in this example, Citrix XenApp).
- C is the local hard drive on the given node.
- F is the cluster shared drive resource. (This is the installation drive i.e. the place where installation files - used by both nodes - will be stored.)
- CTX_CLUSTER_RESOURCE_DLL_PATH is the location where the cluster resource DLL executable is stored. This file should be stored locally on each cluster node. This msixec argument is used for clustering only.
- REGISTER_CTX_LS_CLUSTERING is either "no" for cluster node 1 or "yes" for cluster node 2. This msixec argument is used for clustering only.

1. Install Java on both cluster nodes.
2. Ensure that the cluster IP address, cluster name, and a shared disk are configured as cluster resources and that all the cluster resources are owned by the first node of the cluster.
3. From a command-line in the first node of the cluster, run the following:

```
msiexec /i D:\Licensing\ctx_licensing.msi  
CTX_CLUSTER_RESOURCE_DLL_PATH="C:\ctxlic"  
REGISTER_CTX_LS_CLUSTERING="No" /l*v "C:\install.log"
```

4. Click **Next** at the **Welcome** screen and accept the license agreement.
5. On the page that lists the destination folder where the licensing components will be installed, click **Next** to accept the default (after changing the drive letter to correspond with yours, if necessary). By default, the licensing components are installed in F:\Program Files\Citrix.
6. Select the licensing components that you want to install.
7. Specify the location of the license files on the shared drive of the cluster-enabled servers. By default, the license files are stored in F:\Program Files\Citrix\Licensing\MyFiles.

Note: You cannot store the license files at the root directory level. You must store them in a folder or a subfolder.

8. Accept the default license server and vendor daemon port numbers unless the numbers are already in use or you are using a specific port number for your firewall (vendor

daemon port number). In this case, enter alternate numbers. The default numbers are:

- License server port number is 27000
- Vendor daemon port number is 7279

9. Select the Web server and click **Next**.

10. Click **OK** to restart the Web service.

Note: Temporarily stopping the Web service affects any dependent services.

11. Click **Next** to install the licensing components.

12. Using the Cluster Administrator, make the second node in the cluster active.

13. From a command-line on node 2, run the following (For node 2, you will be typing `Yes` to register the clustering service):

```
msiexec /i D:\Licensing\ctx_licensing.msi  
CTX_CLUSTER_RESOURCE_DLL_PATH="C:\ctxlic"  
REGISTER_CTX_LS_CLUSTERING="Yes" /! *v "C:\install.log"
```

Note that in this step REGISTER_CTX_LS_CLUSTERING is changed to **Yes**.

14. Repeat Steps 4 to 10.

15. After you install the licensing components, add the license files to the following directory on the shared drive of the cluster: F:\Program Files\Citrix\Licensing\MyFiles\.

16. Reread the files.

Rereading a License File on a Clustered License Server

1. Open your Web browser.
2. Type the following URL in the browser: `http://clustername/lmc/index.jsp` where clustername is the name of the license server cluster.

Note: “lmc” in the URL is case-sensitive and must be typed in lowercase.
3. From the Welcome page, click **Configure License Server**. The License Files page appears.
4. Under the License Files heading, click **Update license data**.

Tip: You can also use `lmreread` license administration command to reread license files on a clustered license server.

Administering a Cluster-Enabled License Server

All licensing administration features available in standard deployments of Citrix Licensing are also available on clustered license servers.

Before you use the License Management Console or license administration commands to administer the license server, verify what node in the cluster owns the resources. License administration commands can be run only from the active node of a cluster.

Tip: If you want to use license administration commands to administer the license server, set an environment variable.

Setting an Environment Variable for a License Server Cluster

If you want to use license administration commands with a clustered license server, you must set an environment variable with the name of the license server cluster.

1. In System Properties, click the **Advanced** tab.
2. Click **Environment Variables**.
3. In the System Variables section, click **New**.
4. In the **Variable name** box, type `_CLUSTER_NETWORK_NAME`.
5. In the **Variable Value** box, type the name of your license server cluster.

For information about using license administration commands, see [Using License Administration Commands](#).

Accessing the License Management Console from a Cluster-Enabled Server

1. Open your Web browser.
2. Type the following URL in the browser: `http://clustername/lmc/index.jsp` where `clustername` is the name of the license server cluster.

Important: “lmc” in the URL is case-sensitive and must be typed in lowercase.

Upgrading a Clustered License Server

If you installed the clustering hotfix for MetaFrame Presentation Server 3.0 and you want to upgrade to the license server, you must first remove the clustered license server installed with the hotfix and then install and cluster the new version of licensing. If you do not do this, the license server upgrade will not work.

For information about uninstalling a clustered license server, see [Uninstalling Licensing from a Clustered Server](#).

If you installed a more recent version, you can use the following procedure.

The following drive letters and paths/variables are used in this procedure:

- D is the drive for your product media (in this example, Citrix XenApp).
- C is the local hard drive on the given node.
- F is the cluster shared drive resource. (This is the installation drive i.e. the place where installation files - used by both nodes - will be stored.)
- CTX_CLUSTER_RESOURCE_DLL_PATH is the location where the cluster resource DLL executable is stored. This file should be stored locally on each cluster node. This msiexec argument is used for clustering only.
- REGISTER_CTX_LS_CLUSTERING is either "no" for cluster node 1 or "yes" for cluster node 2. This msiexec argument is used for clustering only.

1. Using the Cluster Administrator, make the first node in the cluster active.

2. From a command line, run the following:

```
msiexec /i D:\Licensing\ctx_licensing.msi  
CTX_CLUSTER_RESOURCE_DLL_PATH="C:\ctxlic"  
REGISTER_CTX_LS_CLUSTERING="No" /l*v "C:\install.log"
```

Note: The resource DLL should be stored locally for each node in the cluster. This is the only file that should be stored on each cluster node.

Setup will detect the existing installation and will upgrade the first node.

3. Using the Cluster Administrator, make the second node in the cluster active.

4. From a command-line on node 2, run the following (For node 2, you will be typing *Yes* to register the cluster services):

```
msiexec /i D:\Licensing\ctx_licensing.msi  
CTX_CLUSTER_RESOURCE_DLL_PATH="C:\ctxlic"  
REGISTER_CTX_LS_CLUSTERING="Yes" /l*v "C:\install.log"
```

Note that in this step REGISTER_CTX_LS_CLUSTERING is changed to **Yes**.

Setup will detect the existing installation and will upgrade the second node. The upgrade is complete.

Uninstalling the Clustering Hotfix for Presentation Server 3.0

Uninstalling licensing from a clustered license server is a straightforward uninstall using the **Control Panel > Add or Remove Programs** from the active node; however, if you installed the clustering hotfix for Presentation Server 3.0, you must remove the clustered license services before you remove licensing.

If you have the hotfix installed, perform the following procedure and then perform the Uninstalling a Clustered License Server procedure.

1. To remove Microsoft clustering using the .CMD script, from a command prompt, change directories to the C:\ctxlic folder.
2. Uninstall the license server clustering component by running the following command:
`ConfigureLS.cmd "uninstall"`

Important: Insert the double quotation marks in the command exactly as shown.

3. Repeat the uninstall command on both nodes.
4. Delete the C:\ctxlic folder on both cluster nodes.
5. On the active node, launch the Cluster Administrator tool and verify that the four services below were removed from the Cluster Group:
 - Citrix Licensing
 - WMI
 - W3SVC
 - Citrix License Management Console
6. Perform the [Uninstalling a Clustered License Server](#) procedure.

Uninstalling a Clustered License Server

Uninstalling licensing from a clustered license server is a straightforward uninstall using the **Control Panel > Add or Remove Programs** option from the active node.

Note: If you installed the clustering hotfix for Presentation Server 3.0, you must remove the clustered license services before you remove licensing. See [Uninstalling the Clustering Hotfix for Presentation Server 3.0](#).

1. From the first node in the cluster, launch **Control Panel > Add or Remove Programs** .
2. Remove Citrix Licensing.
3. Using the Cluster Administrator, make the second node active and launch **Control Panel > Add or Remove Programs** .
4. Remove Citrix Licensing from the second node.
5. Delete the remaining files from the shared drive.

Note: The uninstallation process does not remove the license files, options files, report logs, and debug logs from the shared drive. For information about the files that remain, see Uninstalling Licensing in the [Readme for Citrix Licensing](#).

Troubleshooting Cluster-Enabled License Servers

When troubleshooting a cluster-enabled license server, try the following:

Operating System	License Server Version 11.3 and Earlier	License Server Version 11.5
Windows 2000 Server Windows Server 2003	<p>Check to see if all four license server resources are installed and online:</p> <ul style="list-style-type: none"> • Citrix Licensing service • Citrix License Management Console service • WMI Performance Adapter service • Web service (IIS or Apache) 	<p>Check to see if all five license server resources are online.</p> <ul style="list-style-type: none"> • Citrix Licensing service • CTXLSPORT • LMC service • W3SVC service • WMI service (IIS or Apache)
Windows Server 2008	Not supported	<p>Check to see if all five license server resources are online.</p> <ul style="list-style-type: none"> • Citrix Licensing service • CTXLSPORT • LMC service • W3SVC service • WMI service (IIS or Apache)

Note: If any of the licensing services fail to start, the cluster detects that licensing is offline and attempts to restart the service three times (by default). If these attempts are unsuccessful, fail-over to the next node is initiated and the cluster attempts to start the services on the second node. If the attempts fail on the second server, the process may enter into an infinite loop. In this case, the computers running Citrix products fall into the grace period. During the grace period, client connections are not affected.

- If you move the resources to the other node, do you still see the issue?
- Does your license file have the cluster HOSTNAME in uppercase? The cluster hostname is always uppercase.
- For Windows 2000 Server and Windows Server 2003:

1. In the Cluster Administrator, under the cluster name, expand **Cluster Configuration** > **Resource Types**.
 2. Verify that ctxlsclustres is a valid resource type (appears in green).
- For Windows Server 2008:
 1. In the Failover Cluster Management window, from the left pane, select the cluster. In the middle pane, the summary information for the cluster appears.
 2. Click the **Cluster Core Resources** title to expand the section.
 3. Verify that the cluster resources are all online (green arrow).

Frequently Asked Questions for Licensing

These are frequently asked questions about your licensing environment.

Can I rename the license server?

License files run only on the license server for which they were made. More specifically, license files contain the hostname or binding identifier of the license server you specify when you allocate the licenses from citrix.com. You cannot use the license file that you generated, which specifies a particular license server name, or a MAC address (in the case of an appliance), with a different license server name or appliance.

Create new license files that reference the new server name or MAC address by reallocating and generating the new file.

If I upgrade my license server will it affect my license files?

No. The license server and all product licenses are fully backward compatible and will not introduce any issues into your environment.

Can a single license server supply licenses to users connecting from different servers using different product editions?

Yes. One license server can contain licenses for multiple editions of a Citrix product. The type of license checked out corresponds to the edition that is configured on the product server. A product server is configured to consume an edition of a license and therefore will check out that edition of a license.

For example:

ProductServerA is configured to checkout Enterprise licenses.

ProductServerB is configured to checkout Platinum licenses.

LicenseServer1 contains both Enterprise and Platinum licenses.

- Users who connect to LicenseServer1 from ProductServerA will check out Enterprise licenses only. Once the number of Enterprise licenses on LicenseServer1 is exceeded, new requests from ProductServerA users will be denied until existing Enterprise connection licenses are released.

- Users who connect to LicenseServer1 from ProductServerB will check out Platinum licenses only. Once again, if the number of Platinum licenses on LicenseServer1 is exceeded, new requests from ProductServerB users will be denied until Platinum connection licenses are released.

Note: License checkout times may increase if many product servers with many users are contacting the same license server simultaneously. One license server can only accept 4096 inbound TCP-IP requests at one time. If you are planning to have more than 4000 computers connecting at the same time, Citrix recommends that you use several license servers.

Examples of Possible Deployments:

Scenario 1: Two farms

- FarmA contains product servers configured for Enterprise edition
- FarmB contains product servers configured for Platinum edition
- One license server (shared)
- User1, User2, User3, User4...User2000 connect only to FarmA
- User2001, User2002, User2003...User4000 connect only to FarmB

Scenario 2: One farm

- The farm has two sets of published applications
- One set of published applications is hosted by product servers configured for Enterprise edition
- One set of published applications is hosted by product servers configured for Platinum edition
- One license server (shared)
- User1, User2, User3, User4...User2000 connect only to product servers with the first set of published applications
- User201, User202, User203...User4000 connect only to product servers with the second set of published applications