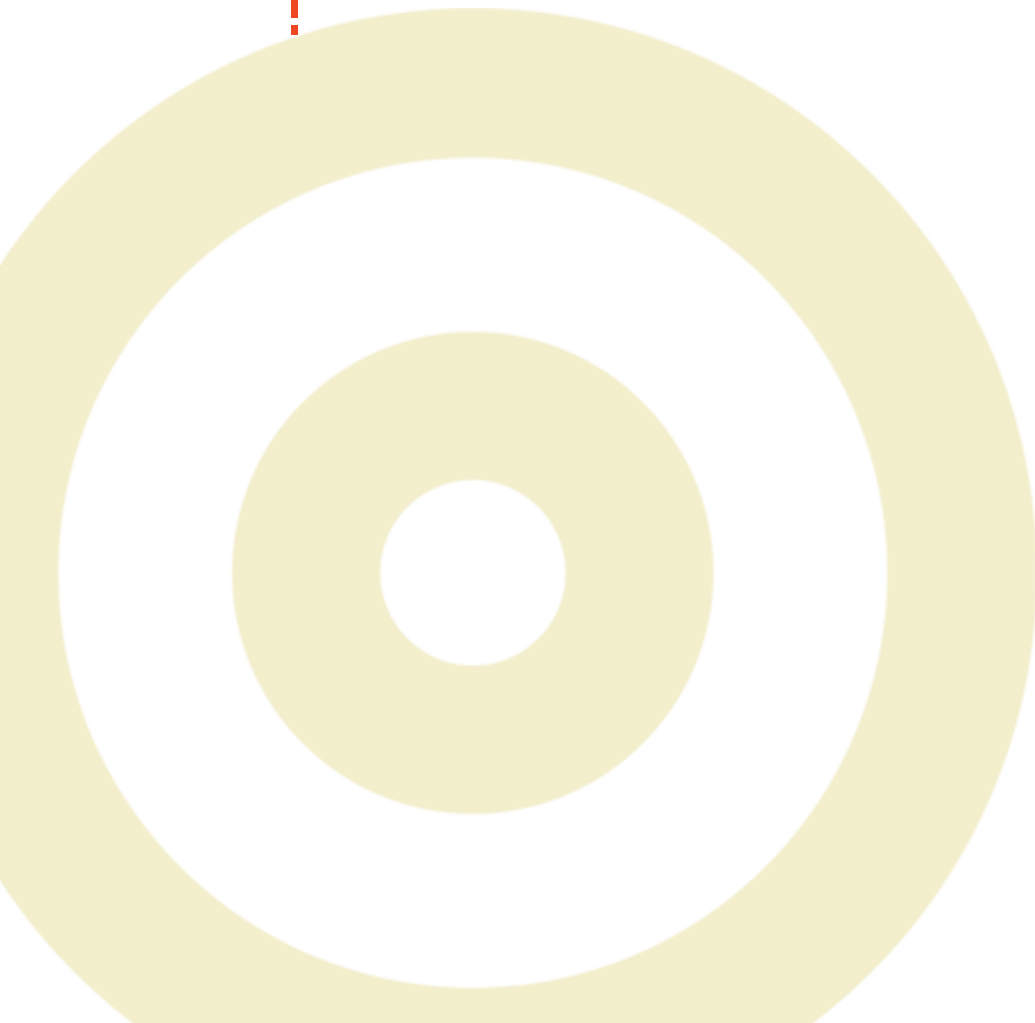


Terminal Services Why Doesn't This Work



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Terminal Services Why Doesn't This Work

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BIOS

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Terminal Services Why Doesn't This Work?

Licensing Problems

The most common terminal services problems generally refer to the most common Terminal Server licensing problems. This document focuses on licensing. It explains how licensing works, and addresses the most common licensing problems and how to resolve them. Incidentally some of this information may give you ideas of how to avoid paying for terminal services licensing. All of the concepts are apparent when reviewing terminal services. This is all public information; Microsoft knows it, every news group that exists knows it, and it has been in print before. However, some people may get a few ideas if they have not seen this information before. If you do not pay for Terminal Server client access licenses, you are violating the law and Microsoft will not accept that. Do not assume that because some options do not check for licensing means that it is legal to avoid the licensing regulations

The focus on licensing with terminal services is due to the fact that terminal services licensing is the single biggest support issue that Microsoft has for any Windows server product, not for Terminal Services, but across the board. Most of these problems are resolved in a fairly short time. Usually, the technicians are able to help the people calling Technical Support fairly quickly. The same problems tend to come up over and over again, which is one of the reasons why they tend to be easy to resolve. The goal of this document is to help you avoid ever having to call Technical Support. The other reason why it is important to focus on licensing is that licensing problems are not just an inconvenience, they can actually lock out the user population.

Challenges

The reason why licensing is so hard is three-fold. With every version of terminal services, the license model changes. Every time a new version of the server operating system is installed, it is necessary to relearn how the licensing works. Furthermore, when using, for example, 2000 and 2003 together, it is necessary to have two licensing models work together and remember how each model works.

Licensing is enforced; therefore, it must be set up properly for the Terminal Server to work correctly. Another problem is that even though licensing is enforced it is not self-healing. It cannot ensure that it is set up properly. Users can be locked out by the licensing being setup improperly, misunderstanding the licensing systems, or trying to make 2003 work like 2000. The Terminal Server may not be able to report that something is wrong, or if it can, it will not be able to fix it. It will rely on you to do so.

Overview

Three fundamental questions are:

- Who needs the license?
- How are they going to get one?
- What level of enforcement is available?

Using Windows Server 2003 as an example, either the machine or the user needs a license. Whether the device or the user needs a license depends on how the Terminal Server is set up. The Terminal Server can be licensed per-device or per-user.

A Terminal Server set up for per-device licensing cannot accept per-user licenses. It is not capable of recognizing those types of licenses. It is all right to have a Terminal Server set up in per-user mode and have per-device licenses installed on the license server. That is legally okay. The license server will not log or assign the per-device licenses, but this is a legal method of licensing.

Once again, the 2003 Terminal Server can accept either per-user licenses or per-device licenses but not both. The Terminal Server per-user license never actually asks for a license at all. Asking for licenses is just one part of the process

When a device logs on to a Terminal Server and connects to a Terminal Server, the device presents the license. On a Windows machine the license is stored in the registry. On a Macintosh or Linux machine, both of which can be a valid Terminal Server client, it stores the file on the Terminal Server. On a terminal

itself it is stored in flash ROM. When the device logs in under the Terminal Server for the first time and does not yet have a license, because the license is required for any kind of connection, the Terminal Server will permit the initial connection long enough to check that the person who is logging on to the Terminal Server is authorized to log on. At this time it will issue a temporary license to the machine, check that the person is allowed to log on and grant the initial connection. The second time that device connects with that user, because they already have a temporary license issued to them, the device will receive a permanent license, which will be recorded on the license server.

A Terminal Server in per-user mode will not assign licenses to users. It will only issue temporary licenses. Therefore, if you are looking at the license server trying to see what users have a permanent license assigned to them, they will not be listed there. There is no way to manually return the licenses to the pool of available licenses. They will automatically revert if they are not used for random intervals between 52 and 89 days from the date the license was first issued.

A Terminal Server in per-device mode will not need to keep contacting the license server to get more licenses issued to it. A Terminal Server that is in per-user mode, even though it does not issue permanent licenses, will periodically need to check for the presence of a license server. Terminal Servers will look at these license servers either through discovery or when they are directly pointed to a license server. Per-device licensing is enforced. If an internal server is in per-device mode and the device logs on, and it does not present a license and no licenses are available for issuance on the license server, that client device will be denied access. Per-user licensing is not enforced. Per-user licensing allows a Terminal Server not ask for a license.

Licensing Model

There are a number of licensing misunderstandings that have arisen. XP clients need per-device licenses on Windows 2003 Terminal Servers. This is confusing because in Windows Server 2000, 2000 Pro clients did not need an additional license. They were able to draw from the limited pool on the license server. A license server is still required for the Terminal Server but it is not necessary to install any licenses on it if all clients are 2000 Pro.

That is not the case for Windows Server 2003. Most people purchased licenses after April 2003 because the licensing model changed very close to the end of the release date of Windows Server 2003. Microsoft issued some grandfather licenses for copies of XP purchased before April 2003; if you bought XP licenses before the grandfather date, or before the release date of Windows Server 2003, then you can get amended licenses for those XP clients. Otherwise, you will need per-device licenses for those clients, or per-user licenses.

MetaFrame

Some other people using MetaFrame are confused about whether they need Terminal Server Client Access Licenses (TSCAL). The answer is yes, they do. MetaFrame licensing is separate from TSCAL licensing. The protocol being used to connect to the Terminal Server is irrelevant to the licenses that are required. It is the same as the licensing cost for a Windows Server CAL, which does not change when using TCP/IP or NetFiles for network protocol. Whether using RDP or ICA, which are the two Terminal Server protocols available to connect to a 2003 Terminal Server, a TSCAL is still needed.

Mixing Versions

Another question is whether a 2003 license server can issue 2000 licenses and whether a 2000 license server can issue 2003 licenses.

A 2003 license server does know about 2000 licenses and can issue them. A Windows 2000 license server does not know about 2003 licenses. Even though a 2000 license server is aware of the existence of per-device licenses, it does not know about 2003 licenses. Therefore, when you are using 2003 Terminal Servers, you will need a 2003 license server to issue the licenses for them.

Resolving License Mode Mismatch

Many people call product support services or look for help elsewhere because the clients are locked out. The symptoms of the problem include the clients cannot log on to the Terminal Server at all, are told they do not have available licenses or they are seeing error messages that are telling them that their temporary licenses will expire. With Service Pack 1 for 2003, error reporting improved and warns people there will be a problem coming up before the clients are locked out.

The problem relates to terminal servers in per-device mode. If the client devices cannot get the permanent license there are two issues. Either the Terminal Server cannot find licenses at the appropriate time because no licenses of that type are available on the license server or it cannot find the license server at all.

The issue here is straightforward. The default licensing mode for 2003 Terminal Server is per-device even though a 2003 Terminal Server can accept either per-device or per-user licenses. However, there are per-user licenses available for 2003. People who buy the per-user licenses because that is the preferred way to issue licenses, but leave the terminal server in per-device mode, will not be able to get per-device licenses as required. Therefore, even though there is a license server available to a Terminal Server, once a grace period is up on the Terminal Server, it is unable to issue any permanent licenses of the required type because there are no per-device licenses installed on that license server. It works in same way as it would if there were never any licenses installed at all.

The simplest way to resolve this mismatch is to open TS config on the Terminal Servers and edit the license mode to per-user. This enables users to start using the per-user licenses that were installed on the license server. Alternatively, you can call the Microsoft Clearinghouse to have them re-issue the licenses, but this is more complicated and will take a lot more time. Product support services cannot re-issue the licenses; only the Clearinghouse can do that. The solution to the license mode mismatch in 2003 is to change the Terminal Server license mode to per-user or else convert the license pack from per-user to per-device.

Discovery Problems

Discovery problems can occur in a few different ways. One way is that the Terminal Server cannot see the license server even when the Terminal Server and the license server are on the same machine. This pertains to the search order for finding the license server in 2003. This was fixed in Service Pack 1 to make it look for the license server itself, but before Service Pack 1 it did not do this. The way to resolve this problem is either to install Service Pack 1, or go into the registry and point the Terminal Server to itself for license server. If you install Service Pack 1 this discovery problem should be fixed and there will be an interface in Terminal Server configuration tools that allow users to point the Terminal Server to a license

server using the graphical interface instead of having to go into the registry and edit it. Service Pack 1 should be installed anyway because this has better error reporting for any problems having to do with Terminal Services.

Another problem that can come up is that the Terminal Server cannot find an enterprise license server. The license server can be set up either for a single domain and not accessible to any Terminal Server outside of it or it can be set up to be available to any Terminal Server in a trusted domain. This is called an enterprise license server as opposed to a domain license server. The problem is that there is a bug in the enterprise license server search algorithm, so that it only searched its current site. It will not perform cross-site searches. It will find the license servers in different domains, as long as they are in the same site but as soon as you get to a different site you cannot see them anymore.

Another, and more common problem, is that you may not have to set up the enterprise license server with the appropriate permissions. To add anything to the active directory, you need the privilege of administering schema, and this requires root domain administrative privileges. If you do not have those privileges, the enterprise license server will not fully advertise itself. It will not be fully setup and you will need to use tools such as ASDI Edit, to go in and manually edit the schema. The simplest way of doing this is to make sure that you are logged in to the root domain administrator account, not just domain administrator (if your domain has a root and branches).

Finally, for another enterprise issue, if you are trying to access the license server across the firewall, you will need these IPsecs to get to it. Broadcast will not work through a firewall.

Summary

Most licensing problems are very simple even if they take up a lot of time and can lock people out very easily. It is vital with the license mode on the Terminal Server that the license that is installed and the license server match. This can be checked by opening the license server and viewing the list of licenses. The licenses will be listed according to type. On the Terminal Server check TSCONFIG to see whether the device is in per-user or per-device mode.

If you have any trouble with license server discovery, install Service Pack 1 and explicitly point to the license

server. Finally, when installing an enterprise license server, ensure that schema administrative privileges are enabled. One enterprise license server per site is required. Taking care of these issues avoids the most

common problems with Terminal Server licensing, the ones that cause people to call in most often and are the largest cause of people getting locked out of the Terminal Servers.



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